15 CENTS A COPY

THE OIL WEEKLY

Devoted Exclusively To The Production and Transportation of Oil and Gas

Engineering News Statistics

Exchange a few minutes time for easy money

$400 in Cash Prizes for letters about Bettis Protectors

20 Cash Prizes

1st	$200.00	4th	15.00
2nd	75.00	5th	10.00
3rd	25.00	Next 15	5.00
Total			$400.00

EVERY contestant not receiving a cash award will be sent a memorandum book.

Write a plain, simple statement or letter telling of your experience with Bettis Protectors or your observation of their performance—and you may win $200.00 or one of the 20 cash prizes offered.

Suggestions on what to write about:

While you need not be confined to these subjects, here are a few ideas that suggest some of the interesting angles to discuss in reference to Bettis Protectors: speeding up drilling; adding life to drill pipe and casing; ease of installation; reducing vibration; saving fuel; use of oversize Protectors; ability to drill deeper holes; opinions of drillers; some unusual incident occurring in use of Bettis Protectors; unusual installations; economy resulting from use of the Protectors, etc. IF YOU WANT MORE DETAILED FACTS about Bettis Protectors write for our Catalog.

Extra cash paid for photographs

We will pay $5.00 each for every acceptable photograph showing Bettis Protectors or Stabilizers, sent by any contestant regardless of whether or not contestant receives a prize. Write details of photo on back thereof.

RULES OF CONTEST

No letter or statement must exceed 300 words.

You may enter one or more letters.

Write on one side of paper only.

All statements must be truthful.

Photograph may accompany letter if desired. Anyone except our employees are eligible to enter.

Contestants must mail letters not later than December 31, 1930.

In event of a tie for any of the prizes, same award will be paid to each of the tied contestants.

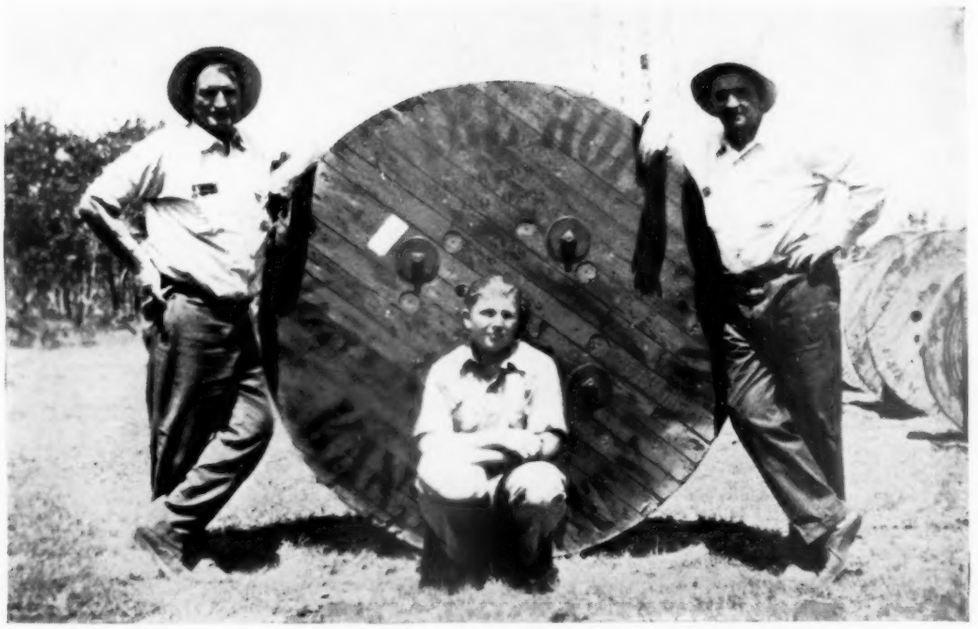
Patterson-Ballagh Corporation

Insurance Exchange Building
Los Angeles

Texas and Gulf Coast Distributors:
Bettis Sales Co., 917 Merchants & Mfrs. Bldg., Houston

Oklahoma Distributors:
Bailey & Becker Company, 410 Thompson Bldg., Tulsa

New York Office: 39 Cortlandt St.



Consistent Performance

on DEEP WELLS in WEST TEXAS

Shown above is a 1" x 8000' UNION Drill Cable on Holman No. 1 of the Phillips Petroleum Corporation, 25 miles southeast of Sonora, Texas; drilling at 5300 feet and going to at least 7000 feet. The men, left to right, are: E. E. (Bud) Cribley, Dist. Supt., Phillips Petroleum Corp.; Kenneth C. Cribley, son of "Bud" Cribley; and O. B. (Slim) McCalmont, Tool Pusher at Holman No. 1. In the background are UNION reels used in drilling other deep wells in this area.

Mr. McCalmont says that "UNION Wire Lines inspire confidence by their consistent performance and make less difficult the drilling of deep wells in West Texas."

"Consistent performance" explains the growing number of UNION reels seen throughout the oil country.

TRADE MARK

» » » » UNION WIRE ROPE CORPORATION « « « «

3 North Madison Ave., Tulsa, Oklahoma

Oil Country Sales and Export Offices: 338 Kennedy Bldg., Tulsa

Branch Office and Warehouse: Portland, Ore.

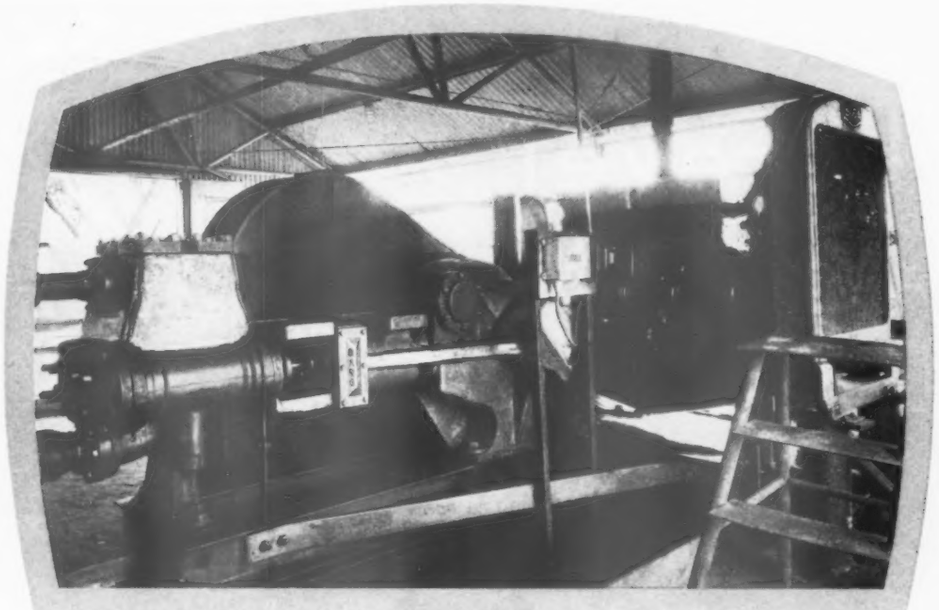
Factory: 21st and Manchester, Kansas City, Mo.

JARECKI MANUFACTURING COMPANY

Mid-Continent and Eastern Oil Field Distributors . . . . . Stocks at All Stores

UNION WIRE LINES

The OIL WEEKLY. Issued weekly by the Gulf Publishing Co., 3501 Buffalo Drive, Houston, Texas. Subscription price $1.00 per year; 15 cents per copy. Entered as second-class mail matter December 23, 1916, at the post office at Houston, Texas, under act of March 3, 1879



Gaso-Buda Portable Diesel Pumping Unit in use by Prairie Pipe Line Company at New Castle, Texas.

The GASO-BUDA Portable Diesel Unit became Popular within A Few Weeks

When this Diesel powered pumping unit was announced, buyers appeared immediately. Within only a few weeks commendation began to come in from users who found this outfit the perfect answer to a very definite need. For servicing new and unproven fields operators needed a pumping unit that was easily moved, quickly and inexpensively installed, efficient in the use of fuel —yet capable of handling large capacities at high pressures. The GASO-BUDA Portable Diesel Pumping Unit proved ideal for such service—as well as for any temporary or semi-permanent use.

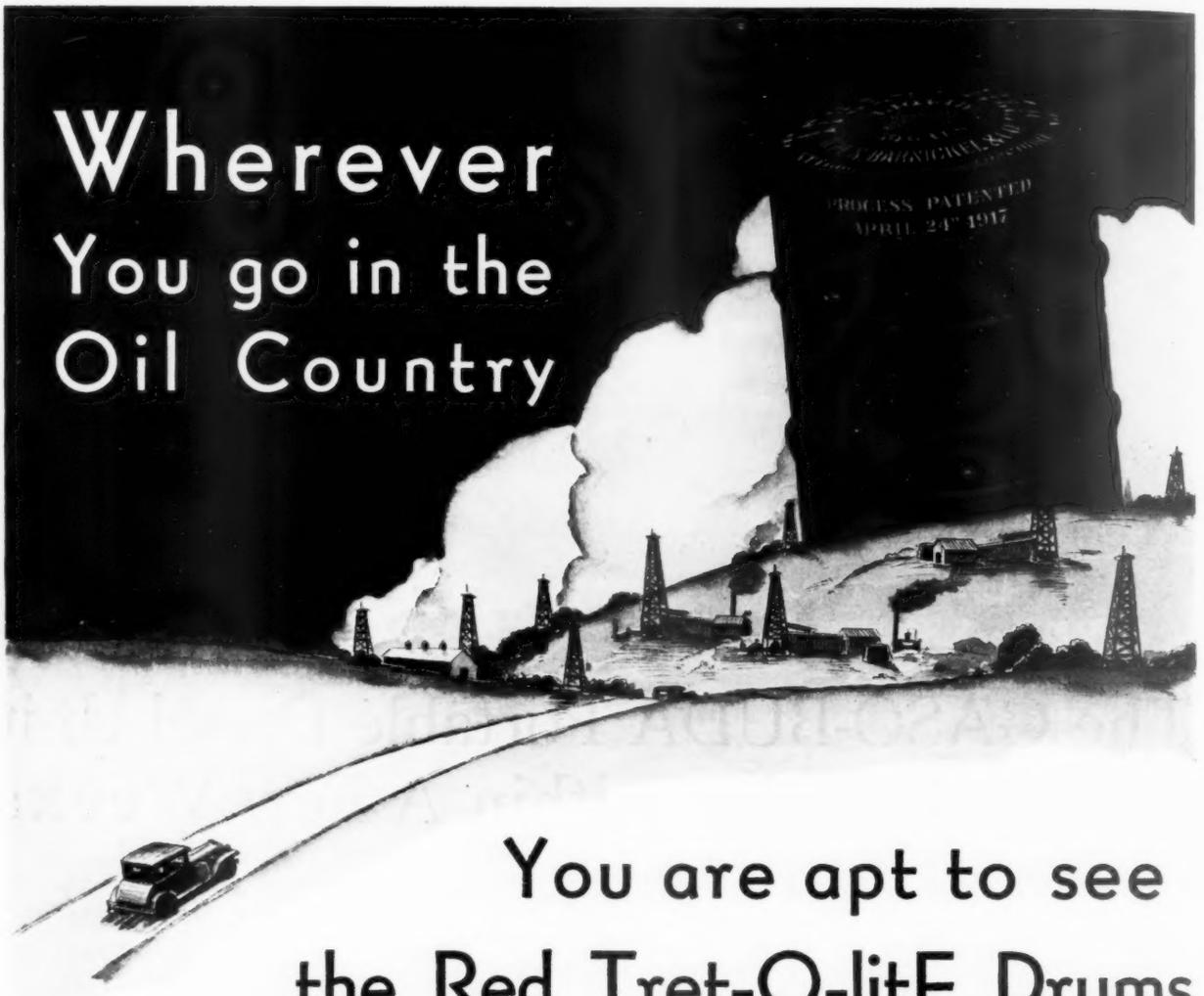
DIESEL ECONOMY combined with PORTABILITY

This unit consists of the GASO Fig. 710 Timken Bearing Enclosed Power Pump—with interchangeable liners giving capacities from 54 bbls. per hour at 1400 lbs. pressure to 500 bbls. per hour at 300 lbs. pressure—compactly mounted on steel H-beam skids with V-rope drive from BUDA M.A.N. Light Weight High Speed Diesel Engine of 92 or 120 H. P. operating efficiently on fuel having a Baume gravity of 26 to 38.

Ask for detailed specifications.

GASO PUMP & BURNER MFG. CO.
TULSA, OKLAHOMA
DALLAS, TEXAS NEW YORK, N. Y.

GASO PUMPS
for every oil industry need



You are apt to see the Red Tret-O-litE Drums

You won't see many of them perhaps - - - for but little Tret-O-litE is required to recover a lot of oil. But where "cut oil" is present the first commercially successful treating method is still the most widely used » » » » Simplicity, rapidity, economy, thoroughness and *certainty of results* commend the Tret-O-litE process to the great majority of experienced operators » » » » And wherever "cut oil" is encountered a Tret-O-litE representative is at hand - or can be there - bringing the vast experience and resources of the Wm. S. Barnickel & Company organization. ❖ ❖ ❖ ❖ ❖ ❖

WM. S. BARNICKEL & CO. » » Webster Groves, St. Louis, Mo.

Tret-O-litE

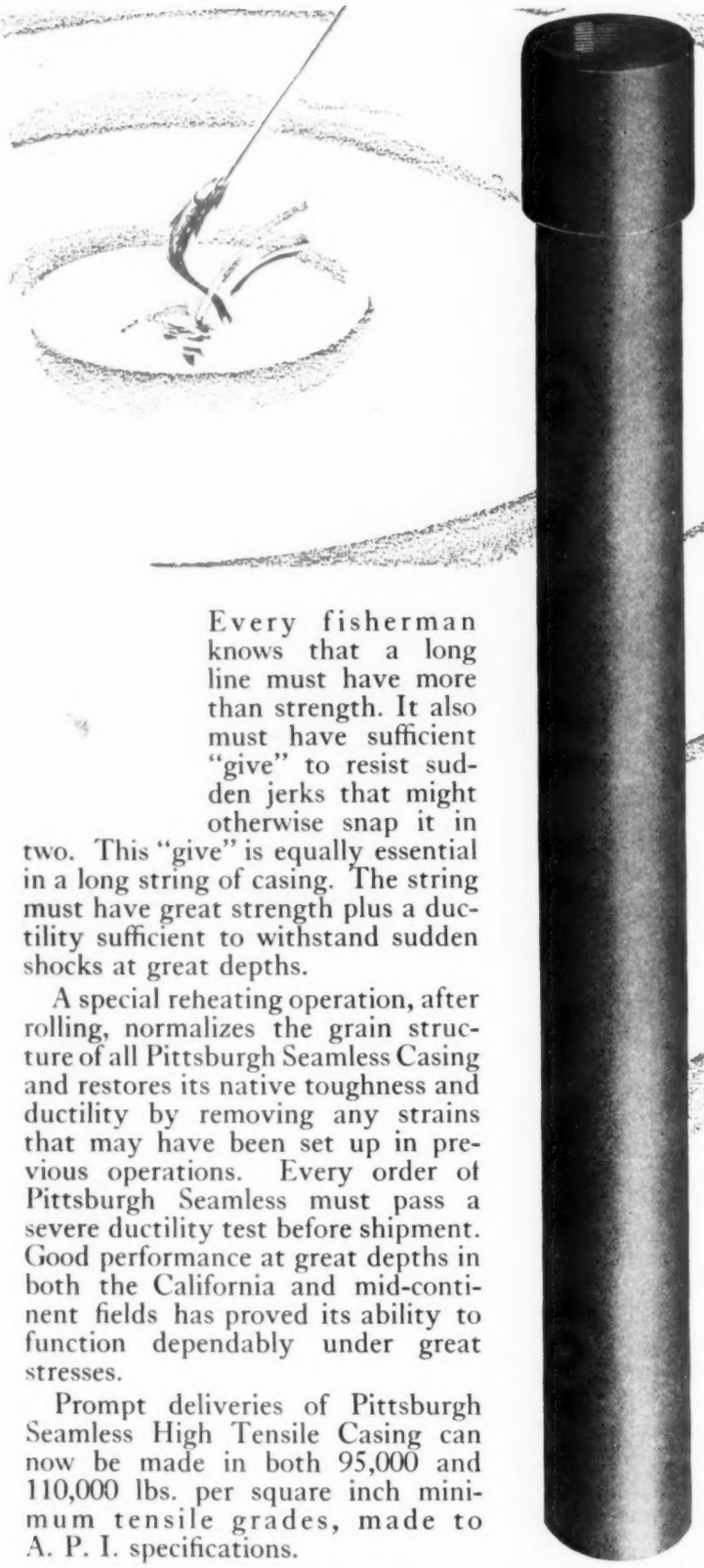
Reg. U. S. Pat. Off.

The big red Halliburton trucks that you see in the field do their work amazingly well; but they are merely the visible symbols of the intense research and scientific study that goes on constantly in the Halliburton laboratories . . . . To meet Halliburton standards the strongest commercial trucks are rebuilt to make them *stronger;* the most dependable pumps are strengthened to make them *more dependable;* valves, fittings, plugs and mixing device are all specially designed to give your well the maximum protection to which its liquid treasure entitles it.

HALLIBURTON
OIL WELL CEMENTING CO.
Duncan, Oklahoma

Would you, as a reader of The Oil Weekly, like to receive copies of THE CEMENTER as issued? Each number contains interesting information about cementing and drilling fluids. There is no cost or obligation—simply sign your name below and mail to Halliburton Oil Well Cementing Co., Duncan, Oklahoma.

Name..... Address.....



Down Deep it's DUCTILITY that counts

Every fisherman knows that a long line must have more than strength. It also must have sufficient "give" to resist sudden jerks that might otherwise snap it in two. This "give" is equally essential in a long string of casing. The string must have great strength plus a ductility sufficient to withstand sudden shocks at great depths.

A special reheating operation, after rolling, normalizes the grain structure of all Pittsburgh Seamless Casing and restores its native toughness and ductility by removing any strains that may have been set up in previous operations. Every order of Pittsburgh Seamless must pass a severe ductility test before shipment. Good performance at great depths in both the California and mid-continent fields has proved its ability to function dependably under great stresses.

Prompt deliveries of Pittsburgh Seamless High Tensile Casing can now be made in both 95,000 and 110,000 lbs. per square inch minimum tensile grades, made to A. P. I. specifications.

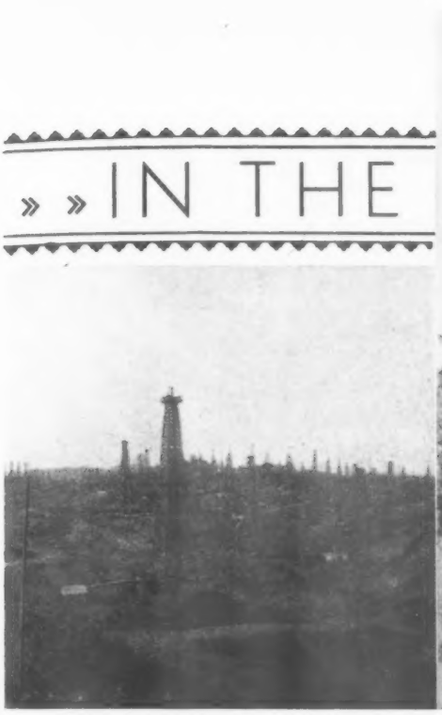
Pittsburgh Steel Products Co.
Division of
Pittsburgh Steel Co.

Pittsburgh New York Detroit Chicago
St. Louis Tulsa Houston

Pittsburgh Seamless
HIGH TENSILE CASING

3034

» » IN THE ORIENT



Chauk Field, Burma

Rig in Sanga-Sanga, Dilam River, Louise, Borneo

Tana District, Iraq

Performance makes for friendship . . . . Friendship establishes mighty assets in business . . . . This type of asset the Reed Roller Bit Company is rich in . . . . For almost weekly come reports of performance . . . . And numerous are the friendships we count across the Orient . . . . From Iraq . . . . through India . . . . to the Dutch East Indies . . . . The Reed Rock Bit performs with speed . . . . and at an economy . . . . Reed Reamers give first aid . . . . in the making and keeping of straight hole . . . . While Reed Core Bits effect a high recovery . . . . with small cost . . . . due to replaceable parts . . . . For the friendship of Reed users we are appreciative . . . . And we pledge anew . . . . our best efforts toward the further betterment of these tools . . . . and their performance.

Gulf Coast and Mid-Continent Distributors
Martin-Decker Automatic Recording Weight Indicators

REED ROLLER BIT CO.

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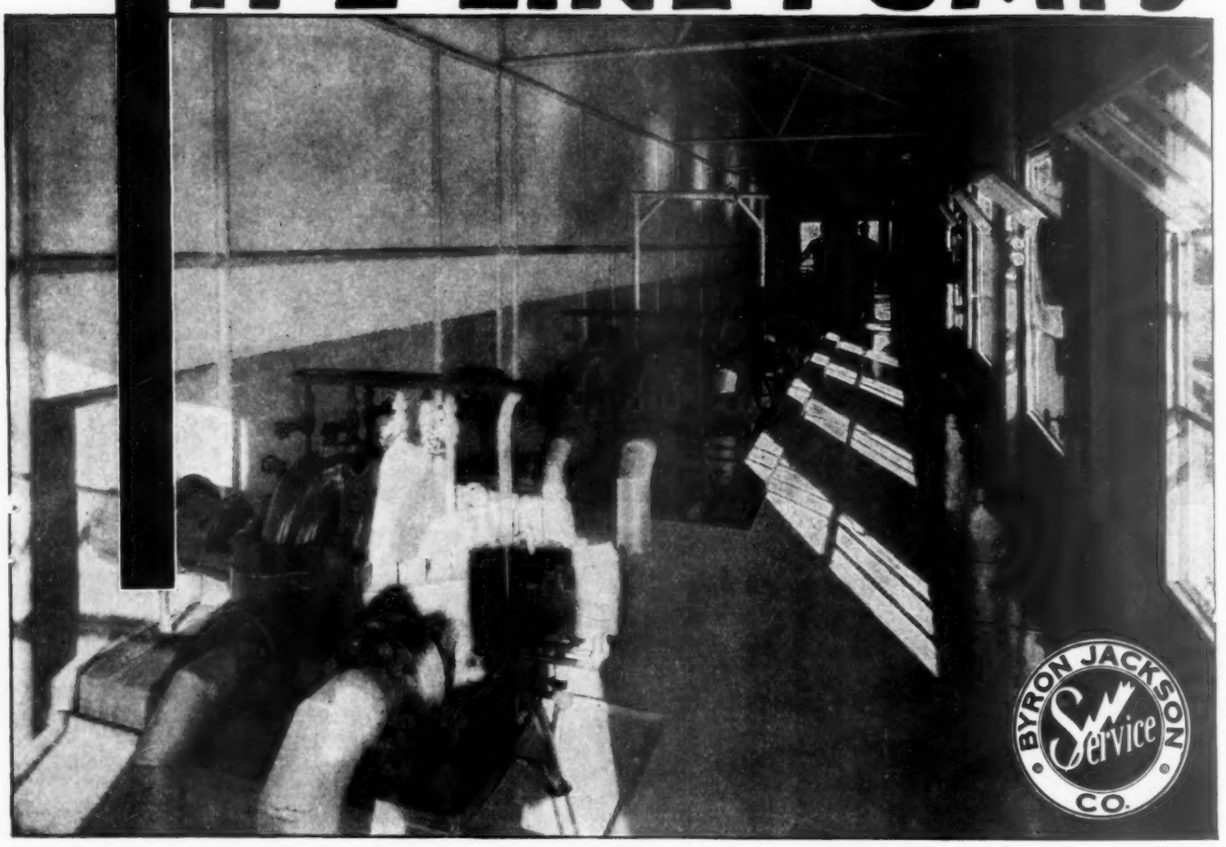
Oklahoma City, Oklahoma
1129 Southeast 29th St.

Los Angeles, Cal.
1317 Esperanza St.

PIPE LINE PUMPS



BYRON JACKSON oil pipe line pumps are standard equipment because of their rugged construction, reliable performance and low pumping cost. Stocks of pumps and parts are maintained at strategic points in the field ◣ Byron Jackson engineers will be glad to work with you on the design of your next pipe line or the improvement of existing ones. A letter to our nearest branch brings this service to you.

SINCE 1872

BYRON JACKSON CO.

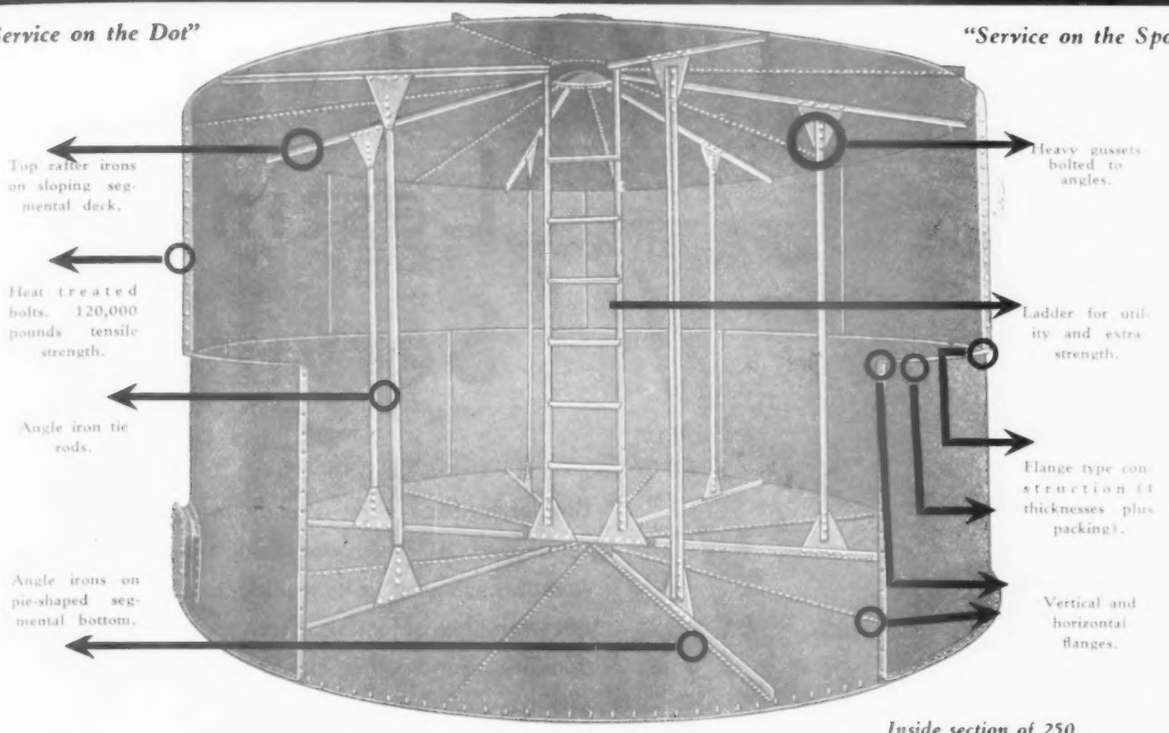
Factories: BERKELEY, Los Angeles, Visalia, Calif.
Branches: NEW YORK and CHICAGO
Houston, Tulsa, Dallas, Detroit, San Francisco,
Portland, Salt Lake, Phoenix

BYRON JACKSON

CENTRIFUGAL PUMPS FOR EVERY SERVICE

BJ BJ BJ BJ BJ BJ BJ BJ BJ BJ BJ BJ BJ BJ BJ BJ BJ BJ BJ BJ BJ BJ BJ BJ BJ BJ BJ BJ

"Service on the Dot" *"Service on the Spot"*


Top rafter irons on sloping segmental deck.
Heat treated bolts. 120,000 pounds tensile strength.
Angle iron tie rods.
Angle irons on pie-shaped segmental bottom.
Heavy gussets bolted to angles.
Ladder for utility and extra strength.
Flange type construction (4 thicknesses plus packing).
Vertical and horizontal flanges.

Inside section of 250 barrel tank

Strength of Structure

The B. S. & B. PERFECTION Vapor Pressure Tanks are built like a skyscraper—they are more than mere shells—there are supports throughout, furnishing a framework for this structure of strength.

A copper-bearing steel is used; the bolts are heat treated, and withstand 120,000 lbs. tensile strength; there are the angle tie rods and the ladder keeping the tank intact, prevent bulging or collapsing, and, in addition, there are double flanges of the staves coming together alternately, horizontally and vertically, forming a network of additional heavy reinforcements.

B.S.&B. Perfection Vapor Pressure TANKS

In addition to the numerous features of these tanks, only a few of which are mentioned above, each is equipped with the B. S. & B. Thief Hole Pressure Vacuum Valve. This safety valve functions automatically, at 16 ounces pressure, or 2 ounces vacuum, and protects the tank, as the tank protects the crude.

These tanks prevent evaporation of the crude, and in addition, the crude itself is maintained at well head gravity, since the lighter fractions cannot escape. The richer the oil, the greater the price paid by the pipe lines.

These tanks are portable, and are made in various sizes. *From a branch to your lease in a few hours' time!*

Wood Tanks for Sour Crude

For the Southwest Texas and Panhandle fields, particularly where hydrogen sulphide gas is dominant in sour crude, we have produced the B. S. & B. Vapor Pressure tanks, made of redwood, with all metal parts insulated with wood. These tanks defy corrosion! Equipped with B. S. & B. Thief Hole Pressure Vacuum Valve.

May we send a man to talk tanks, or a letter or plan relative to your own requirements? Please address Dept. A-35.

EFFICIENT B S & B SERVICE DEPENDABLE

Black Sivalls & Bryson INC.
BARTLESVILLE ~ OKLAHOMA

Our Watchword QUICK SERVICE

8

QUALITY that assures Lasting Service

Bethlehem Steel Pipe is made to give lasting service, even when conditions are unusually severe. Each step in its manufacture is carried out with this objective. Strength, uniformity, ductility, sound welds, clean, smooth surfaces, and freedom from flaws—these are qualities assured by careful manufacture and by rigid tests and inspections.

Bethlehem Steel Pipe is made in a splendid, modern mill. Unexcelled facilities, the special processes employed, the high quality of the raw materials, the skill and experience of the men in charge of the various operations—these factors insure that Bethlehem Steel Pipe conforms in every respect to the Bethlehem standard of quality.

The nearest Bethlehem District Office will gladly give you further information about Bethlehem Steel Pipe. Your inquiry or order will receive immediate attention.

BETHLEHEM STEEL PIPE

Bethlehem maintains at Wilmington, Calif., and at Houston, Texas, well-assorted stocks of line pipe, ready for immediate shipment. Both threaded and coupled and plain-end pipe are included in these stocks.

BETHLEHEM STEEL COMPANY, General Offices: Bethlehem, Pa.

District Offices: New York, Boston, Philadelphia, Baltimore, Washington, Atlanta, Pittsburgh, Buffalo, Cleveland, Cincinnati, Detroit, Chicago, St. Louis

Pacific Coast Distributor:
Pacific Coast Steel Corporation, San Francisco, Los Angeles, Portland, Seattle, Honolulu

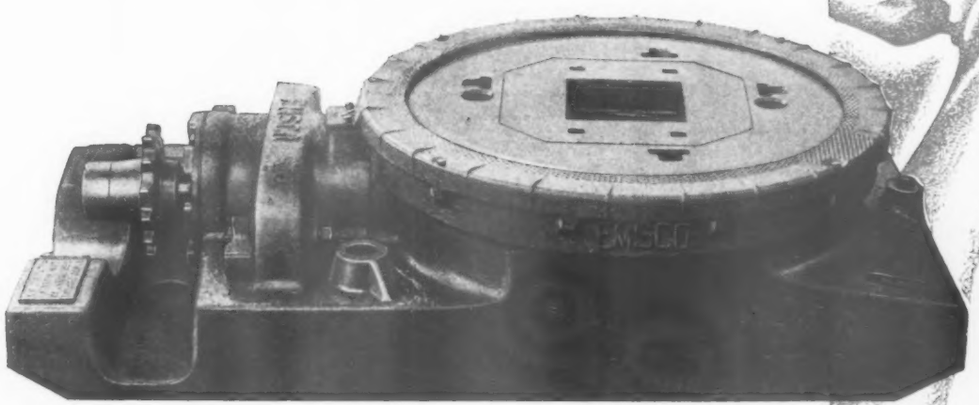
Export Distributor: Bethlehem Steel Export Corporation, 25 Broadway, New York City

SHUTS OUT MUD AND WATER

EMSCO

TYPE H 27½"

TOTALLY ENCLOSED ROTARY



Fully Enclosed—Double Seal, preventing slush leakage
One Piece Base » » Pinion Shaft Mounted on SKF Roller Bearings
Unitary Bearing Housing » » Solid Hub Sprocket
Alloy Steel Working Parts » » Ring Guard
Splash Lubrication of Table Assembly

"If Continental Sells It....There Is No Better" 7003

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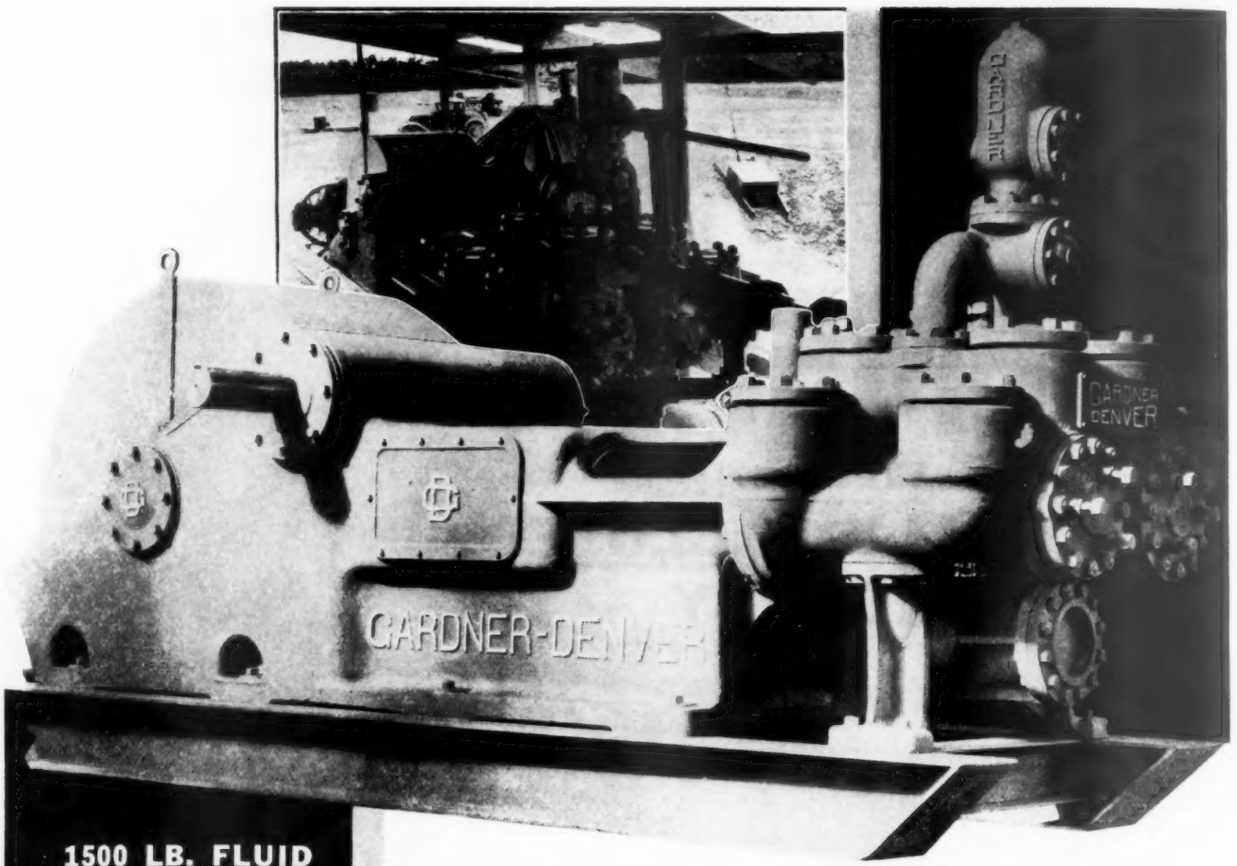
CONTINENTAL



1500 LB. FLUID END

SUITABLE FOR 250 H. P. MOTOR

ROLLER BEARINGS

STEEL CONNECTING RODS

STEEL CROSS HEADS

7¼ x 20

POWER PUMP

GARDNER-DENVER COMPANY
QUINCY, ILLINOIS

Oil Field Branches in all Principal Cities

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GARDNER-DENVER

save TIME *and* MONEY

be SURE of SUCCESS

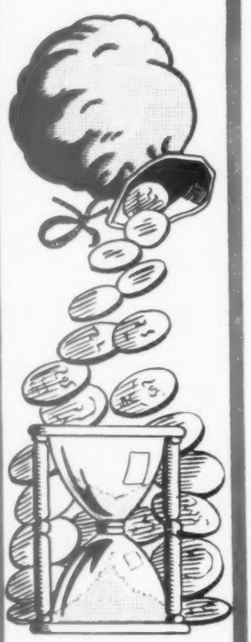
The perfection of Abercrombie Cutting Tools and the skill of their operators is your greatest assurance of success on any cutting job.

The tools employed in performing these important jobs are the result of years of actual experience and a keen engineering knowledge of the feat to be accomplished.

Having pioneered in this field the J. S. Abercrombie Co., has consistently led in the development of Cutting Tools. The Inside Cutting Tool, has been successful in removing casing, liner and screen from hundreds and hundreds of wells. The uniform pressure tool can be rotated in extremely short crooks to cut out liners and screens.

The recently introduced Outside (Casing) Cutting Tool, is being successfully employed in cutting out and removing dropped and crooked drill stem. This tool is capable of removing as much crooked drill stem at one time as it is possible to wash over.

RED BALL SERVICE, is an organization of highly skilled operators whose years of actual drilling experience qualifies them to most effectively operate these tools. The ABERCROMBIE plan of contracting for this service makes cutting out of wells, most economical.



Inside *and* Outside Cutting Tools & Service

J. S. Abercrombie Co.

RED BALL CUTTING SERVICE

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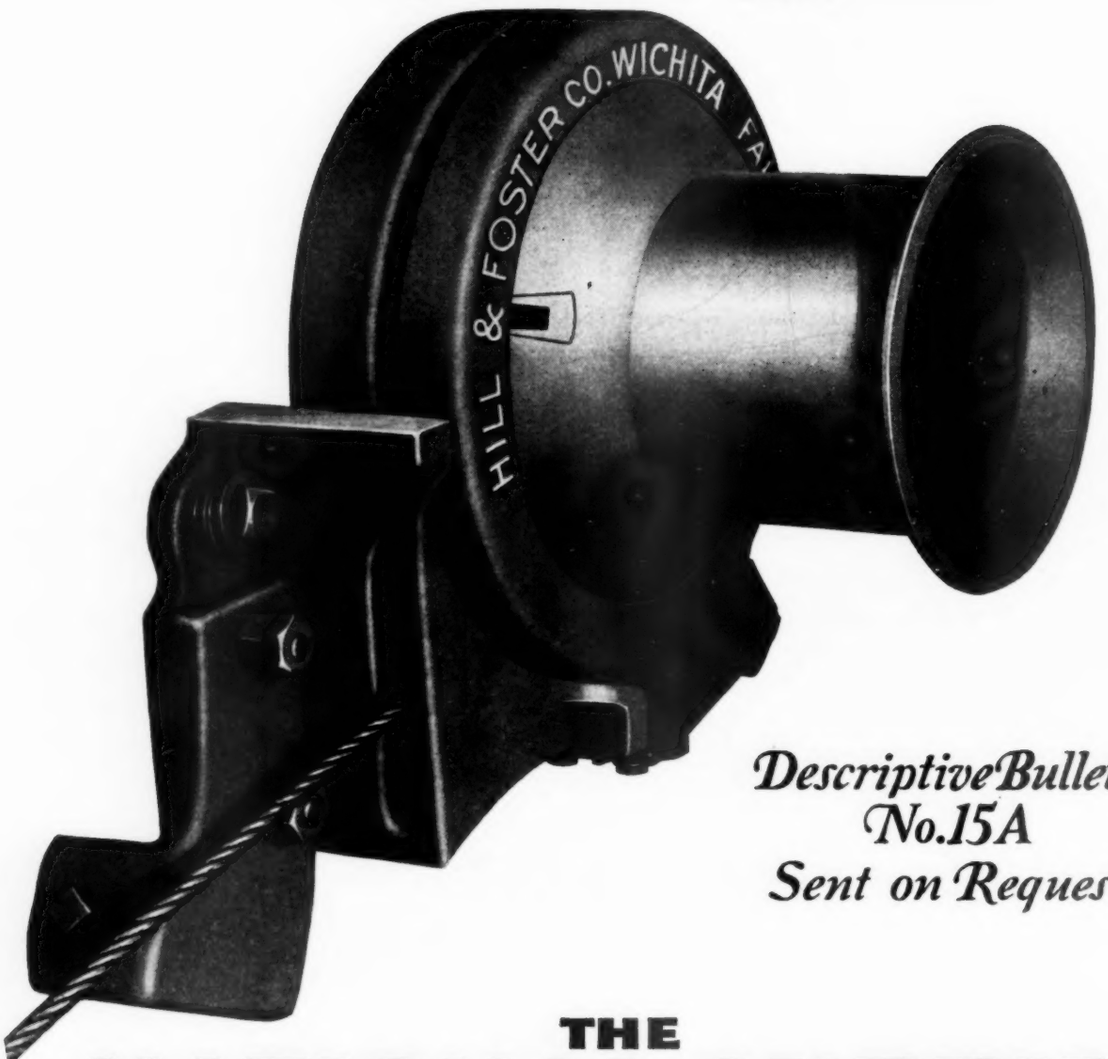
HILL & FOSTER AUTOMATIC CATHEAD

TYPE "M"



Descriptive Bulletin No. 15A Sent on Request

THE NATIONAL SUPPLY COMPANIES

a matter of

considerable importance

to every man who buys, supervises or actually installs packing in any kind or size of stuffing box . . . . . .

(READING TIME: 2 MINUTES, 5 SECONDS)

—and worth it!

A new kind of packing has been placed on the market, a single packing that fits any and all sizes of stuffing boxes, and takes the place of all the formed packings you now have to keep on hand.

It is called Ace-O-Pax, and is a plastic, semi-metallic packing for general use in stuffing boxes of engines, inside and outside packed pumps, all kinds of centrifugal and rotary pumps and equipment, air and ammonia compressors, valves of all kinds, plunger pumps, Corliss glands, etc., etc. It gives unexcelled service in equipment handling steam, hot and cold water, air, gases, oils, petroleum and its distillates, solvents of alcohol and coal tar base, ammonia, caustic alkalies, acids and chemicals. It holds any pressure.

Being plastic, Ace-O-Pax fits any stuffing box you have. It is compounded of long fibre asbestos, metal, graphite and lubricants—all carefully selected. Friction is reduced to a minimum; no gripping or binding of rods, shafts, plungers or valve stems. Sensitive governor valve rods, or heavy plungers, work with equal freedom through Ace-O-Pax.

Because of its high lubricating qualities, and very low abrasiveness, Ace-O-Pax virtually eliminates replacements due to wear. This is one of its strongest features.

Except in unusual conditions, Ace-O-Pax requires no retaining rings. It cannot be solidified, and never needs to be removed. If removed, it can be used again and again. Wear is taken up by adding small quantities of Ace-O-Pax to the glands. It outlasts fabricated packings many times over. It eliminates waste, there being no stub ends of spirals or coils to throw away. It saves much labor—the largest cost item in packing—because of its long life and the little attention it requires.

It does not deteriorate with time or weather. It requires a minimum investment in packing because it knows no special size, handles them all. It is always ready and waiting to do any job, and do it better than any other packing you ever used. It is the one packing that will meet virtually every stuffing box requirement. It saves money, time and trouble.

It is sold on one basis only—satisfactory service guaranteed.

As exclusive distributors in the Gulf Coast, we have a number of free samples ready for mailing or delivery to any oil man, in any department, who would like to try it. The coupon below, a 'phone call, letter or wire will bring your sample promptly—without charge or obligation. Once you see it, and try it, you'll never want to bother with anything else.

Send for your sample today, sure!

T. T. WORD SUPPLY CO., Inc.
HOUSTON — SHREVEPORT — LAKE CHARLES
SEGUIN

T. T. WORD SUPPLY CO., INC.,
P. O. Box 276, Houston, Texas

Send me a sample of ACE-O-PAX for

.....

(State Type of Service)

.....

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Name .....

Company .....

City .....

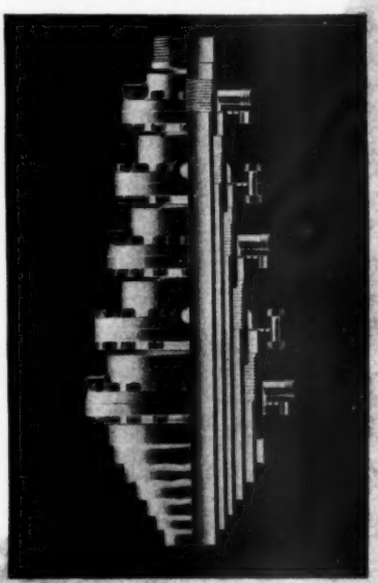
State .....

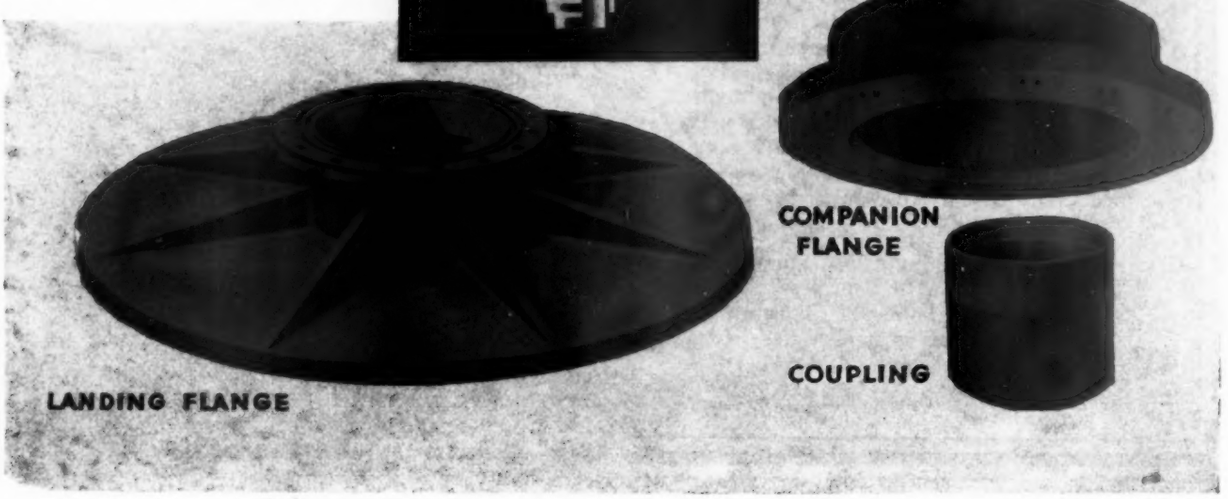
This control equipment CONSERVES cellar space

Conservation of cellar space becomes an important factor in the installation of massive control equipment tested to 3000 and 6000 lbs. Regan control equipment is the most compact, regardless of test rating. The 3000 lb. or 6000 lb. test Regan hook-up occupies very little more space than normal pressure equipment and less area than any other type of control device. There is plenty of space left to work "around" the equipment. Considerable money can be saved in cellar construction by using Regan control equipment.

REGAN CONTROL HEAD

Any crew can quickly install the spools and flanges. Start your well right—and Regan will do the rest. Ask for Bulletin No. 50





Regan Forge & Engineering Co.
Oil Field Equipment
Plant and General Offices
SAN PEDRO (Los Angeles Harbor) CALIFORNIA, U. S. A.

New York Office
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Wm. Braat, Manager.

Mid-Continent Office
Dallas, Texas.
501-2 Marvin Bldg.

Representatives:

Oklahoma City, Okla.
2420 W. 21st St.

Pecos, Texas.
P. O. Box 444.

Maracaibo, Venezuela.
Wm. Adams, Care Amer.. Consul.

ANNOUNCING

A NEW FINISH FOR THE OIL INDUSTRY

DUPONT DULUX

DULUX is a new finish—the result of a basically different formula developed to meet a long-felt need in the oil industry.

LASTS LONGER

Dulux lasts decidedly longer than other protective coatings. In the majority of cases its life is from 50 to 100% longer. Thus it cuts painting and upkeep costs in half. The reason is simply this—Dulux resists the destructive attacks of the ultra-violet rays of sunlight which more than anything else cause a paint film to break down and expose the surface to weather and gases.

RETAINS COLOR

Dulux retains its original appearance and gloss longer than other protective coatings. It presents a smooth, even, film that greatly reduces time and expense of repainting. It protects against moisture and resists petroleum solvents and destructive gases.

QUICK DRYING

These features are most outstanding. But you can add others. Dulux dries in one-third the time ordinary finishes require. Its remarkable adherence to the surface is best proved by its practically perfect adherence to aluminum. Its hard, smooth surface repulses dust and dirt. Its film is hard, tenacious . . . and flexible.

It has required years of work and thousands of scientific experiments to produce Dulux. Months were spent in testing raw materials and hundreds of combinations of ingredients.

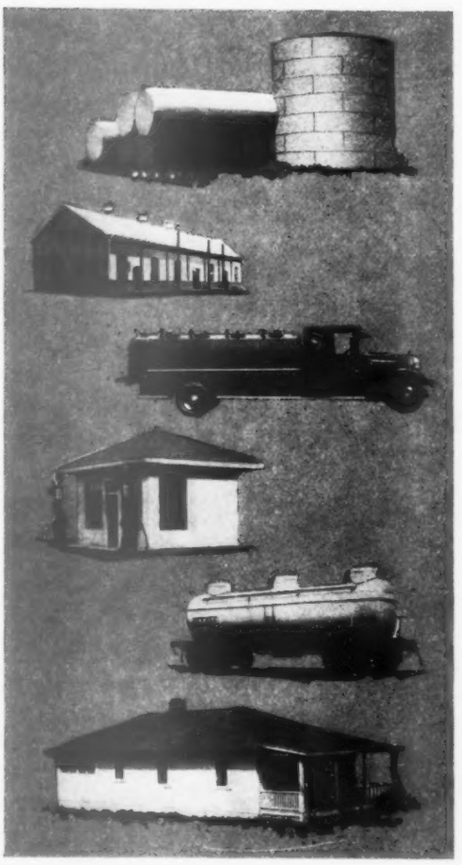
THESE POINTS ABOUT DULUX
may be worth thousands of dollars to you

- Resists the ultra-violet rays of sunlight—paint's most destructive enemy. Lasts decidedly longer than protective coatings now in use . . . in majority of instances, 50 to 100% longer.
- Keeps its initial gloss and brilliancy of color 50 to 100% longer.
- Retains an evenness of film that makes repainting easier and less costly.
- Has excellent adherence, even to aluminum.
- Dries faster and can be recoated sooner than paint.
- Dries to a smooth, hard, elastic film.
- Protects against moisture. Resists the action of petroleum solvents and destructive gases.
- Has the hard, smooth appearance previously associated only with the highest type interior finish.

Here is something new in protective and decorative coverings for your equipment and buildings.

The results of this work received their final test on du Pont Paint Farms in various parts of the country. Then Dulux was again put to the test on actual oil equipment in the field. It proved its worth. And now it is offered to the entire industry.

Dulux finishes are of several types for different types of equipment and for use under different conditions. Finishing coats come in a wide range of colors.



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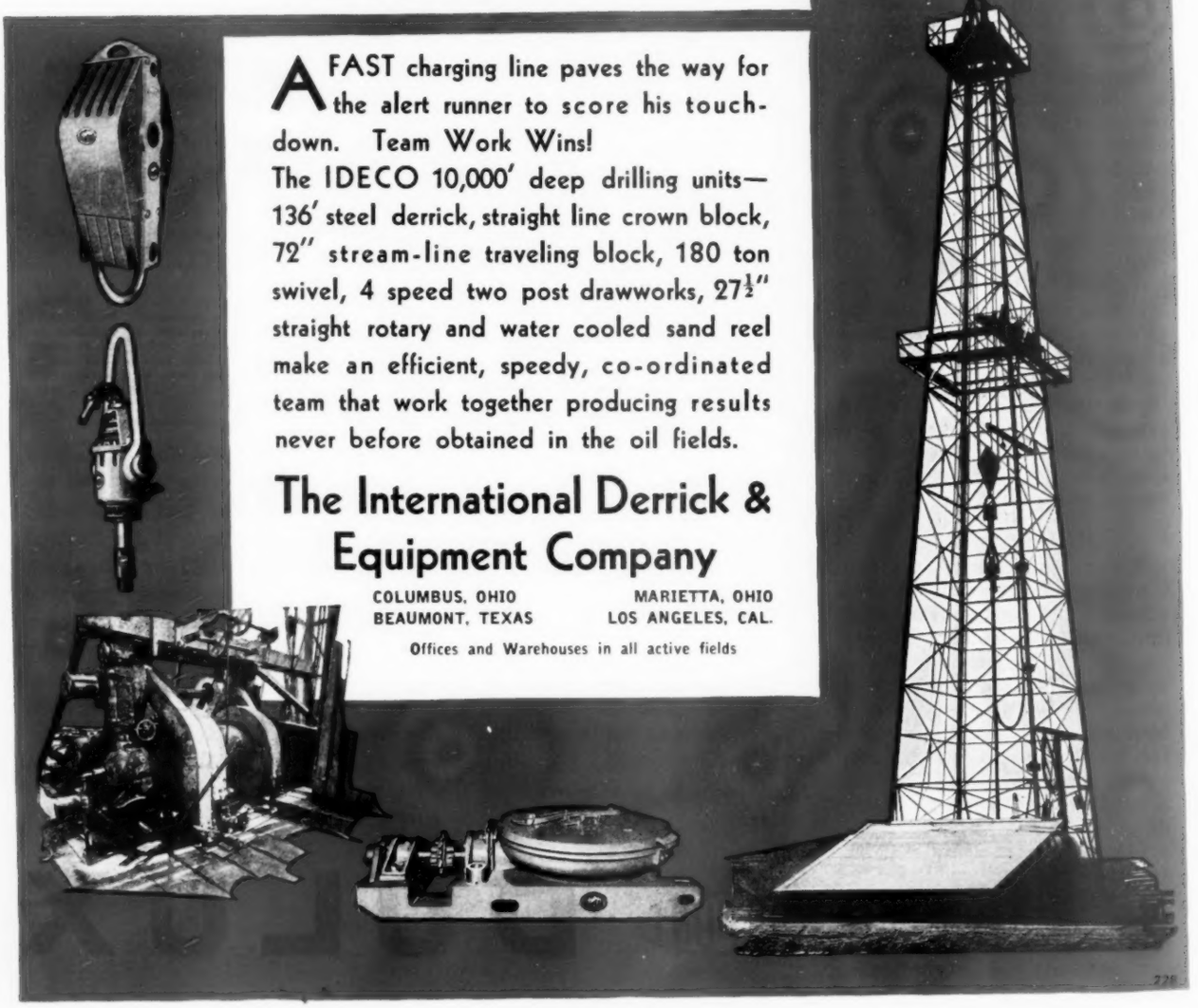

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The OIL WEEKLY

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VOLUME 59, NO. 5

OCTOBER 17, 1930

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SPENCER W. ROBINSON, EDITOR

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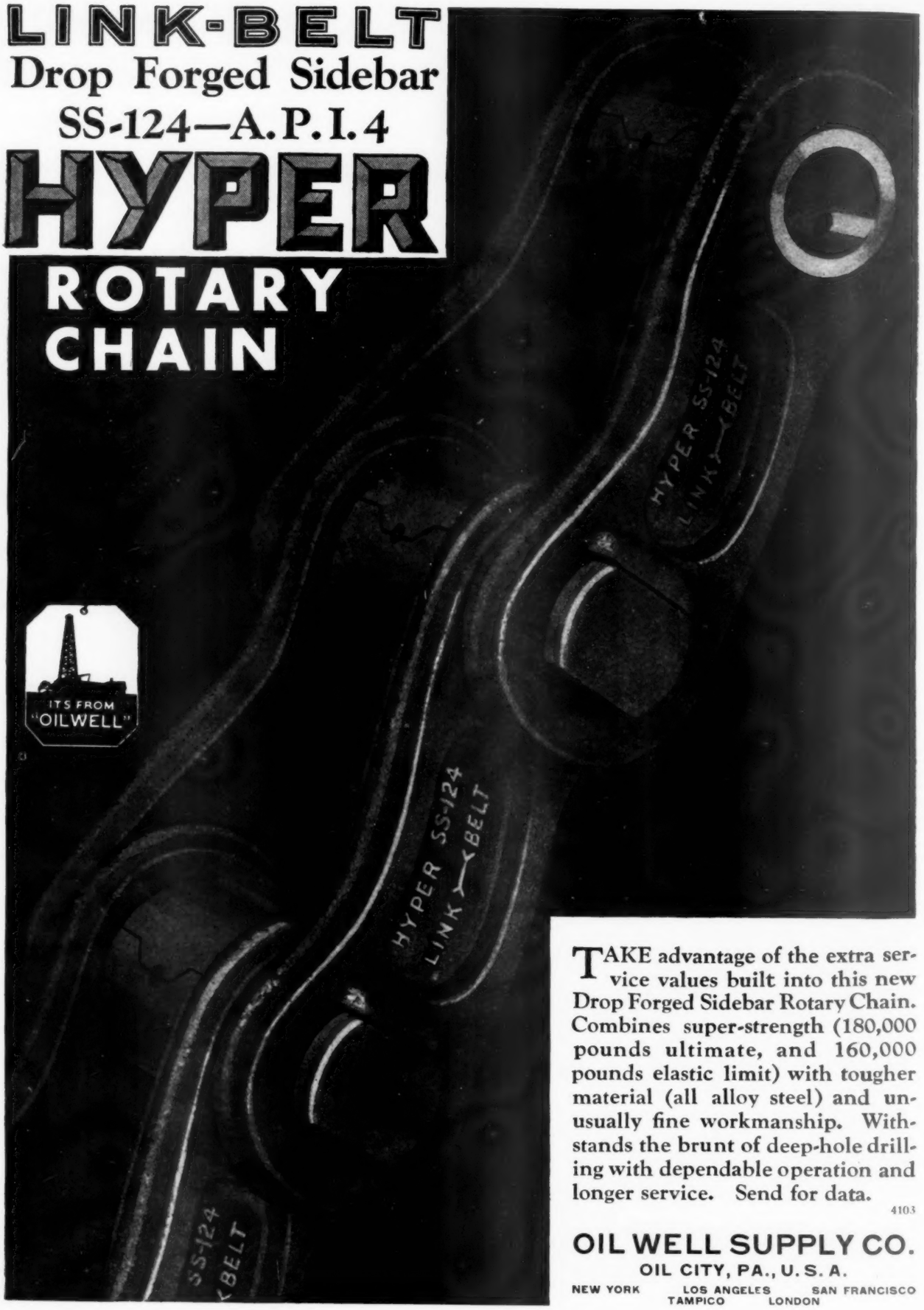

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THE OIL WEEKLY

VOLUME 59, NO. 5 OCTOBER 17, 1930

The Control of California Oil Curtailment

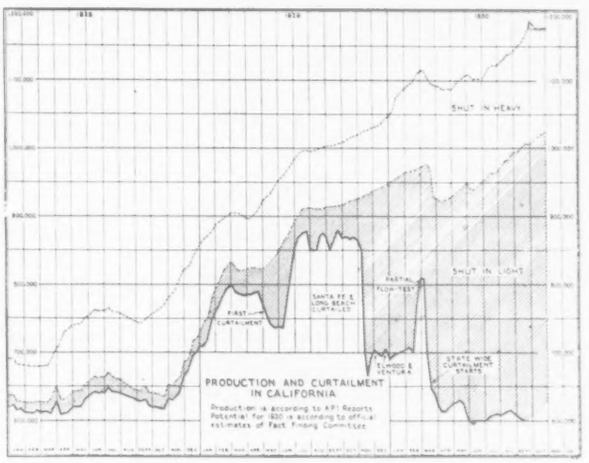
By ROBERT E. ALLEN
Assistant Umpire California Proration

Paper read before American Institute of Mining and Metallurgical Engineers, Los Angeles meeting, 1930

THE organized curtailment of California oil production is not yet one year old but during its first year it has accomplished so much that it is now firmly established as an agency of economic efficiency. The principle of co-operative curtailment has been adopted by other states and it is safe to say that the principle will continue as long as the demand for petroleum is notably less than the potential production. It is interesting to note that this same principle of regulating supply to meet demand is now being urged for other industries such as agriculture and mining.

Since October 31, 1929, when curtailment was instituted by the oil producers of Santa Fe Springs and Long Beach in an effort to avert the disaster of ruinously low prices which confronted them, there has been a constant and increasingly effective curtailment program in California. Prior to that time a notable effort toward the restriction of oil production was made under the direction of F. C. Van Deinse during the early summer months of 1929. A considerable reduction of oil output was recorded as the result of this effort, but due to incomplete co-operation and to the discovery of still deeper zones at Santa Fe Springs, the effort was abandoned and flush field production became unrestricted and prices soon fell to low levels.

This initial curtailment movement was educational and experimental. It showed all operators a way out of their over-production difficulties and developed the principles followed in later curtailment efforts. Thus it was, that only a few days after their oil had been reduced to 60 cents a barrel, the operators at Santa Fe Springs got together and agreed to restrict their current production of more than 270,000 barrels daily to not more than 150,000 barrels daily. The operators at Long Beach followed the same course a few days later and agreed to limit their production to not more than 110,000 barrels daily.



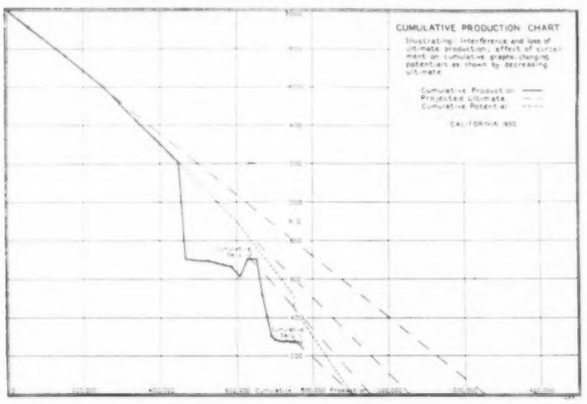
The Santa Fe Springs operators chose H. P. Grimm as umpire and director of their proration program. Neal H. Anderson was chosen umpire for Long Beach. Since that time, as the need for curtailment has increased, practically every field of the state has come under the curtailment of these two umpires. Curtailment of the Elwood and Ventura Avenue production became necessary in December, 1929, and in February, 1930, a general committee was established to direct the application of curtailment to every important field of the state.

A five-day flow test to determine the actual potential production of several important fields was conducted during the third week of February. As a result of this flow test, during which state production jumped to 806,000 barrels daily, an engineering advisory committee determined the true potential of the state to be 1,095,000 barrels daily.

California has been allotted a production of 610,000 barrels daily by President Hoover's Committee on Petroleum Economics for the survey of the oil industry's requirements for 1930. The California general committee set the allowable production of the state at 609,000 barrels daily and directed all field committees and the umpires to prorate their production on that basis, effective March 1, 1930.

Under this program, the production of the state showed a notable decrease. February production averaged 745,916 barrels daily; March, 635,483 barrels daily; April, 625,625 barrels daily, and May, 614,337 barrels daily. Only for a few days did production drop to

the required 609,000 barrels daily. This failure to reach the objective, together with a steadily increasing state potential and a slight recession in demand, forced the general committee to lower the state's oil quota to 596,000 barrels daily, which was a compromise figure between the previous 609,000 barrels daily quota and a recommended quota of 575,000 barrels daily.



The new quota of 596,000 barrels daily became effective May 16, and like the previous quota, became a goal to strive for rather than to attain. On only a few days between May 15 and September 1 did California production fall below 597,000 barrels daily. A steadily increasing potential and the development of the Playa del Rey field together with numerous big wells at Long Beach and Elwood all combined to keep the state's production above the mark set for it.

The results obtained to date from the curtailment of California oil production may be seen by reference to the accompanying graph which is self-explanatory. It is of course difficult to place an actual cash value on any project as conditional as curtailment, but Herbert R. MacMillan, president of the California Oil and Gas Association, has stated that the oil producers of California benefited to the extent of at least $88,000,000 by statewide curtailment during the first six months of 1930.

The Application of Proration

Soon after the beginning of co-operative curtailment in California it became apparent that if proration was to be uniform and consistent in its application it would have to be accomplished by certain definite rules. As there were no rules in existence at that time governing oil proration as practiced in California, it became necessary to assemble certain provisions of various curtailment agreements together with important rulings of the general committee, the field committees and the umpires. This was done and a set of rules or code of procedure was thus established that, with occasional amendments, has governed the application of curtailment in California. Some of the more important paragraphs of this code will be quoted hereafter. For instance, the purpose and basis of proration are defined as follows:

A.—1. Purpose of Proration
The regulation of crude oil supply to normal demand shall be accomplished by equitably distributing among contributory fields and operators the total production required. This division of market outlet is commonly called proration of production.

A.—2. Basis of Proration
Proration shall be based proportionately upon the actual or estimated potential production of any well, lease or field for any given period of time.

Inasmuch as California proration is based upon the potential production of wells, leases and fields the following paragraphs from the code may be of interest:

B.—1. Definition of Potential
The potential production of any well or lease is the average amount of oil the property is capable of normally producing under conditions prevailing at the specified time.

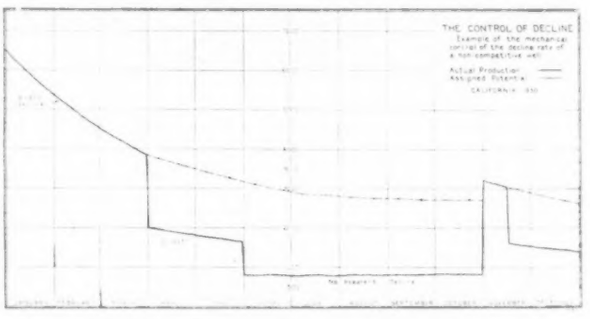
B.—2. Actual Potential
The actual potential of a well shall be ordinarily established by taking the average of the last four or first five full days of normal production after completion or during any subsequent flow test. Certain modifications may be made in the application of this rule when conditions require.

B.—3. Estimated Potential
The estimated potential of any well or lease shall be determined by projecting the normal past performance of the well or lease. Consideration must be given to any actual or anticipated change in the conditions affecting the producing unit.

B.—4. Units of Potential
In the estimation of potentials all large and recently completed wells shall be considered individually, but all settled production may ordinarily be estimated by leases.

It is evident that the accurate determination or estimation of potentials is one of the most important elements of proration. Open flow tests of entire fields are frowned upon by the general committee as being generally unfeasible on account of the large amount of surplus oil that results. It is entirely possible for a new well to establish its initial potential and then be prorated entirely upon the basis of its estimated potential until it goes on the pump or the gas lift, hence it is necessary that the greatest accuracy and the best judgment be exercised in the estimation of potentials. An explanation of the methods used in estimating potentials will be given later.

Various fields and groups of fields have been assigned differing amounts of allowable production by the general committee. Thus Group One comprises the nine flush fields of



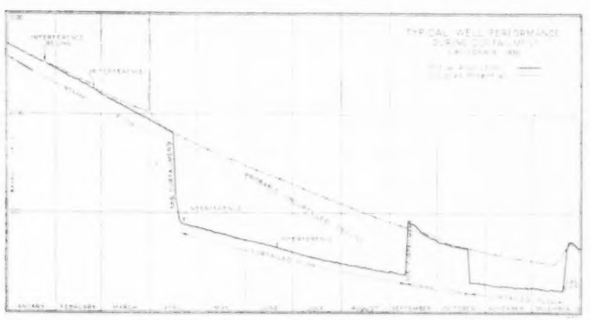
the state which are not regarded as a menace. Ordinarily the total potential of this group averages about 660,000 barrels daily, but since July 1 it has been steadily increasing until it is now well over 700,000 barrels daily. Regardless of the potential of Group One, its allowable production cannot exceed 355,000 barrels daily, under the rule adopted May 15, 1930, and still in effect on September 10, 1930. The distribution of this allowable will be explained in a subsequent paragraph. In Group Three are the so-called menace fields of Kettleman Hills and Playa del Rey which are given special attention by

the general committee. In Group Two are the other 30 fields of the state with variable allowables based upon conditions prevailing in each field.

About the middle and near the end of each month the umpires submit to the advisory committee a statement of the estimated potential of each field for the ensuing half month. After these potentials are approved, the allotment of each field is prorated among the various producers in that field in direct proportion to their respective potentials. Thus the percentage curtailment required may vary from 10 per cent to 70 per cent between different fields, but within a given field all operators are expected to take the same amount of curtailment except in a few special cases.

After the allotted production of any given lease is determined, such allotment is credited with previous under-production or debited with previous over-production. This corrected allotment becomes the allowable production of the lease for the period and is the figure with which actual production is compared in determining over-production or under-production, and it is also the amount of oil which is certified to the pipe line company as being eligible for purchase. The following rules relating to allotments and allowable production are given:

D.—1. Basis of Allotment
The lease shall be the effective unit of proration and production allotment. The community lease or a group of pooled leases under one ownership or management may be considered as one lease if the interests of adjacent operators are not thereby prejudiced.

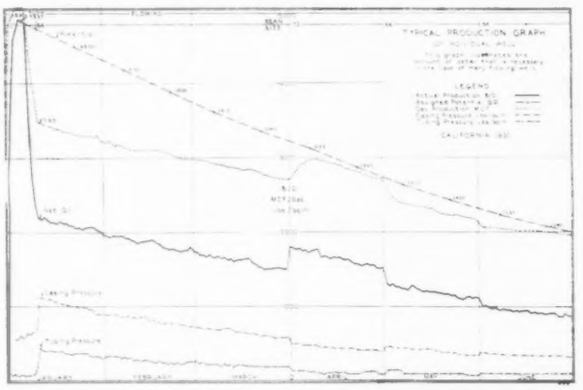


D.—2. The Allotment
The production allotment for any lease shall be that assigned portion or percentage of the potential production, which the lease may ratably produce. The allotment is determined by multiplying the potential by the applicable percentage.

E.—1. Definition of Allowable
The allowable production of any lease for any period shall be the allotment for the period adjusted for prior excesses or shortages.

Naturally, any system of proration requires constant control if it is to last. The first measure of control is the determination of the performance of individual producers. Oil produced and sold or held for sale is determined from monthly statements of pipe line runs and field stocks. These are furnished by the purchasing companies as well as the producer and furnished an absolute statement of marketable production, which is the basis of judging an operator's curtailment.

However, these monthly statements are too infrequent and too long delayed to furnish prompt information regarding the production of various fields. It is necessary, therefore, to require daily production reports from each operator in all the important fields of the state. In this manner a very close daily estimate of the state's production is obtained and it is this daily figure which enables the industry and the public to know the day-by-day status of the curtailment program, and it also permits the immediate exposure and prompt remedy of infractions.

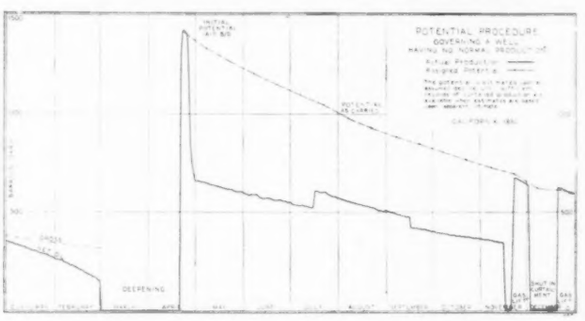


Preliminary statements of an operator's monthly production are made on the basis of the daily production reports, but these statements are always corrected by comparison with the oil inventories as shown by shipments and stocks.

The Limitation of Potentials

Because of the constantly mounting potential of the state, due to the development of new fields and the revival of old fields, and also to the surprisingly slow decline in potential of severely curtailed fields, it became necessary on August 1 for the general committee to reaffirm and insist on the enforcement of a theretofore unapplied ruling which had been made as of May 15.

The intention of the rule was to discourage drilling and the development of new production. Simply expressed, this rule prohibits new wells from participating in the effective potential and in the allotted production of the state until old wells have declined an equivalent amount. In practice, the effective potential and allotment of every lease and field in the state is fixed at an amount which is subject to decline as it occurs, but which is eligible to increase after the development of a



greater actual potential only by prorata participation in the decline of other units.

This rule has been effective since August 1 and has been only partially successful. In some fields it has been very effective and in others it has been rather difficult of enforcement. An illustration of its application may be seen in the Elwood field which had a potential of 79,380 barrels daily and

an allotment of 41,355 barrels daily for the August 1-15 period. For the August 16-31 period the actual potential had increased to 104,160 barrels daily, but the effective potential had increased only by a 995 barrels daily share of other fields decline. The effective potential was only 80,375 barrels daily and the allotment was 41,955 barrels daily. Thus the bringing in of 24,780 barrels daily of new potential added only 600 barrels daily to the allotment of the field and there would have been no increase in the allotment had it not been for a decline in other fields of Group One.

Obviously enough, the strict enforcement of this rule will tend to maintain the status quo of fields and will very strongly discourage the development of new fields that can obtain a place in the group only by the decline of old fields. Within fields a certain flexibility of application has been provided so that wells on new leases are not unduly penalized.

This rule has been both praised and condemned according to the viewpoint of the observer. While it represents an important innovation in control, it is certainly one of the logical steps which the oil industry must take as it advances toward the goal of stabilization and self-control. It tends to discourage unnecessary expenditures for drilling wells that cannot be produced until the oil is needed—and at the same time protects the declining field from being further curtailed to make room for new flush production. The operator who does not drill is thus protected against the excessive drilling of the one who does.

Engineering Control of Proration

The original establishment and the frequent revisions of potentials for practically every well and lease in California was a task of such magnitude that mass production methods had to be adapted to the accepted technical practice of estimating potentials. It became necessary to estimate future potentials of a well or lease with unbiased accuracy, for the amount of an operator's income depends on the potential assigned him. As previously indicated, the initial flow test of a well is often the only fact which can be definitely established during the entire flowing life of a well under curtailment. There is no period of normal decline and there is no normal decline in nearby wells which might be used for comparison. Experience soon proved that family decline curves were seldom of value and generally quite worthless for estimating well potentials in a curtailed field.

For some time after the beginning of curtailment, potentials of individual wells were estimated by projecting the past decline curves. The famous February flow test proved that greater consideration had to be given to the present conditions of wells than the past history.

During the flow test, it developed that the potential of the Elwood and Ventura Avenue fields had been greatly underestimated while the potentials of Santa Fe Springs and Long Beach had been considerably over-rated. The vast differences in the development methods of these fields accountd for the errors in potential. In effect the decline of the deep zone wells at Santa Fe Springs had been much more rapid than the early history of the first wells would indicate. As a matter of fact, it could be seen that in certain areas of the field the completion of every additional well accelerated the decline of earlier wells.

The Determination of Potentials

As previously mentioned, the initial potential of a new well, or of a well which has had some radical change in production methods, is determined by averaging the production for the last four days of a five-day test during which time the well is produced at any rate deemed safe by the owner. The initial potential thus established serves as a basis of proration until the next adjustment when the initial potential is subjected to some apparant or assumed rate of decline. The subsequent estimation of the potential of such a well is discussed in succeeding paragraphs.

It was soon discovered that if satisfactory production records were to be kept and if potentials were to be estimated with any degree of accuracy, production graphs for all leases and for all large or recently completed wells would have to be prepared and maintained. The original construction of these graphs and their constant maintenance involves a lot of work but the results obtained have more than justified the adoption of graphical records of production.

No data appears on a production graph that can reasonably be omitted. Thus the production graphs of some leases are very simple but the graph of a large well may of necessity be quite complete. Extreme examples of different types of production graphs are herewith presented.

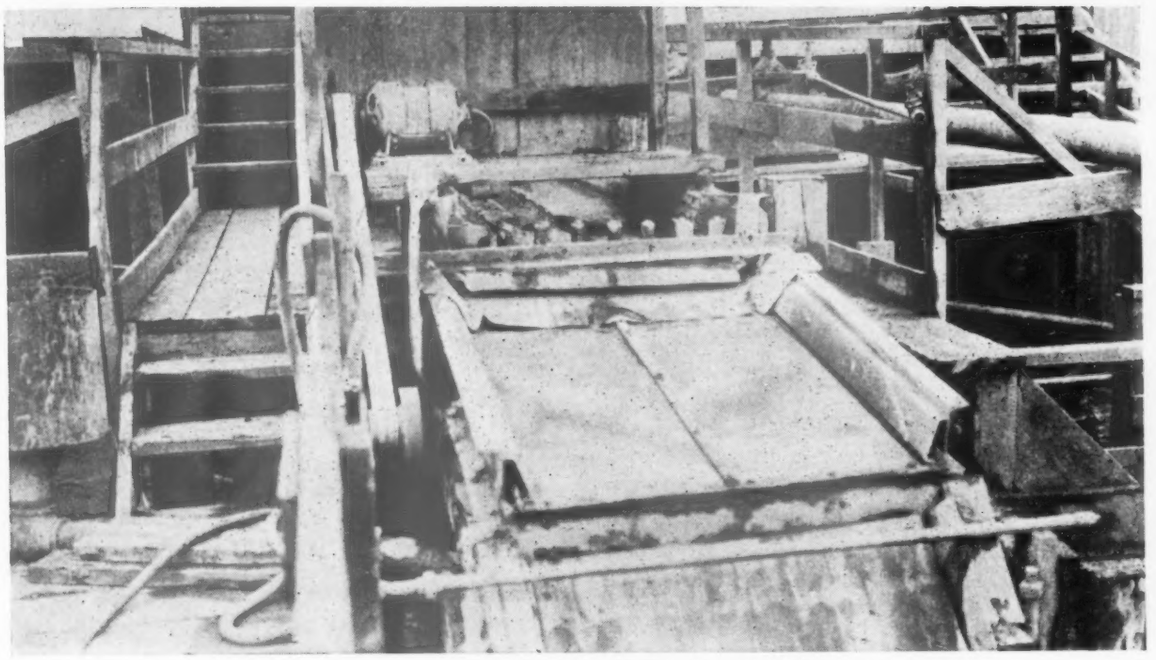
With past history and family curves both proven unreliable in the estimation of potentials, it became necessary to devise some more accurate means of estimating the potential of wells having an irregular history. Any such method had to be based upon the initial flow test in some way, as that was the one definite fact which needed no interpretation. Unfortunately, the initial flow test potential while established accurately enough, was often conducted under conditions of flow which would not long persist, and in such a manner that continued production in such a manner would neither be wise nor safe.

Thus the problem of estimating the potential of wells that had been producing under severe curtailment for several months was a real one. The first step was to establish a classification under which wells and leases could be arranged approximately in order of the difficulty encountered in estimating their future potentials. As a result of this classification it was found that about 80 per cent of all wells considered offered little or no difficulty. These were wells which showed such graphical regularity of production that their respective potentials could be calculated with a close degree of accuracy at least three months in advance. The remaining 20 per cent of the wells considered involved more consideration and work than did the 80 per cent, and the estimates obtained were much less accurate.

As is well known, it is mathematically possible to resolve the normal decline curve of a well into several empirical formulae representing as many different types of natural curves, of which those representing the so-called hyperbolic and exponential type are the most common, although there are others equally accurate but somewhat more cumbersome of application. Some of these curves have a partial reason for being used because they reflect some of the natural mechanics governing oil production but most of them approximate some natural curve only by coincidence. Since so many variables enter into the natural decline of a well it seems very doubtful if any empirical formula can be developed to represent a well's decline for longer than the limited periods during which mechanical and underground conditions remain practically unaltered.

Since accurate short time estimates were required rather than long time approximations, it became necessary to select some formula that could be readily applied and with very little calculation. Obviously enough the simplified exponential formula represents the most practicable one available for the 80 per cent majority of the wells considered. The operation of the exponential formula requires only the average normal production of two periods of any convenient length from a few days to several months. The same results may be obtained by the use of several dif-

(Continued on page 44)



Vibrating screen in use at General Petroleum Corporation's Moco 218B in the Maricopa Flat district

Vibrating Screen Cleans Mud—Makes Big Saving

By BRAD MILLS
Staff Representative

THE use of a special type of vibrating screen to remove sand, shales and foreign matter from rotary drilling mud has proven a very satisfactory innovation at General Petroleum Corporation's Moco 218-B in the Maricopa district, where one of the first installations of its kind has functioned without interruption for two and one-half months. Application to the petroleum industry of a practice long used in other industries for removing undesirable portions of certain mixtures is considered one of the most important engineering developments of the year.

While General Petroleum Corporation's installation at Moco 218-B in the Maricopa field is only one of several now in use in California, the careful record kept on its operation and the success of its action make it perhaps the most interesting of a dozen screens now in use in at least four districts. Installed in the nature of an experiment, the layout has been operated from the beginning with few changes in the original design.

The growing tendency toward reclaiming rotary drilling mud has been apparent for more than a year and many operators have kept careful records on the cost of this phase of drilling. Thousands of tons of mud has been discarded in the Maricopa district over a comparatively short period, the cost of replacing that lost having been a good percentage of the total drilling cost. Shales and sand at certain depths have rendered the mud useless in very short periods. Early in the development campaign in the district new mud was mixed as needed and most operators thought that nothing could be done about the high cost of circulation. The installation of a vibrating mud screen at Moco 218-B followed a decision to reduce mud costs and maintenance of pump parts. It was obvious that the expense involved with experiments in a new type of installation was small when compared with the possibility of arriving at an improved operating technique.

The Apparatus

The installation consists chiefly of a rectangular wire screen cloth mounted on a steel frame and a small electric motor. The screen is 30-mesh and four by five feet. The screen frame is mounted on four snail house type (coil) springs. On one side of the frame and attached to it is a short shaft and pulley to handle the belt connected to the motor.

The screen is placed in the regular mud circuit so that the entire volume passes over or through it. The electric motor is mounted a short distance above the upper end of the screen and on one side of it. The screen is tilted at an easy angle to facilitate the drop of the sand and shales, but the motion of the frame and screen while in normal action does not make a very delicate adjustment necessary. A short slide is placed immediately below the screen to give the coarse particles momentum. A one-inch perforated pipe crosses the slide immediately above it, the play of water from the pipe washing the sand and cuttings to a distant point by means of a gal-

vanized iron trough. The ditch or trough leading to the screen from the well is the same width as the screen, with diamond-shaped wooden blocks placed just ahead of the short drop onto the screen to insure even distribution.

The screen is naturally placed immediately above the ditch carrying the mud back to the pits for recirculation, the reclaimed fluid and that suitable for further use dropping through the screen and flowing by gravity to be picked up by the pumps. The terrain is ideal at Moco 218-B for the installation but similar layouts could be used in almost any location.

The motor and screen are kept in operation as long as circulation is maintained but are stopped when the shutdown involves any appreciable period. The screen gets its action from the belt-driven motor but its efficiency is attributed to the snail house springs. The vibration is so intense when the motor has attained its full speed that it approaches a musical hum. The eye cannot detect its action but a touch with the foot or hand gives an idea of the vibration. The heart of the cleaning action lies in the snail house springs supporting the screen frame.

The engineer who designed the screen for oil field use worked for some time to obtain an elliptical motion. This was found to be the most desirable for removing the coarse particles as well as causing the mud to drop through without hesitation. The four by five screen seems to be the ideal size for an individual well.

The action of the screen is familiar to industrial engineers who have used them in other industries, but the average petroleum engineer has been given a chance to study the installation only during the past year. By mounting the screen frame to the center of the snail house springs, it is obvious that a motor driving a pulley solidly attached to the frame would bring about the vibrating action, which might be termed a takeoff from the age-old sifter action.

Steam turbines have been used on other installations and may even be used on this particular layout, but the crew is optimistic over the uniform action caused by the electric motor.

A flat endless belt is used, but future installations will carry "V" belts. The motor is mounted on slide rails and adjustment of the belt is a simple matter. When the motor is started or stopped, the screen and frame pass through critical periods of speed, vibrating vigorously for a few seconds. This is caused by the action of the snail house springs. The action is very smooth at regular running speeds.

The vibrating screen frame should not touch the mud ditch, the constant action causing leaks under ordinary circumstances. The same applies to the screen frame supports. It is a simple matter to support the screen above the ditch.

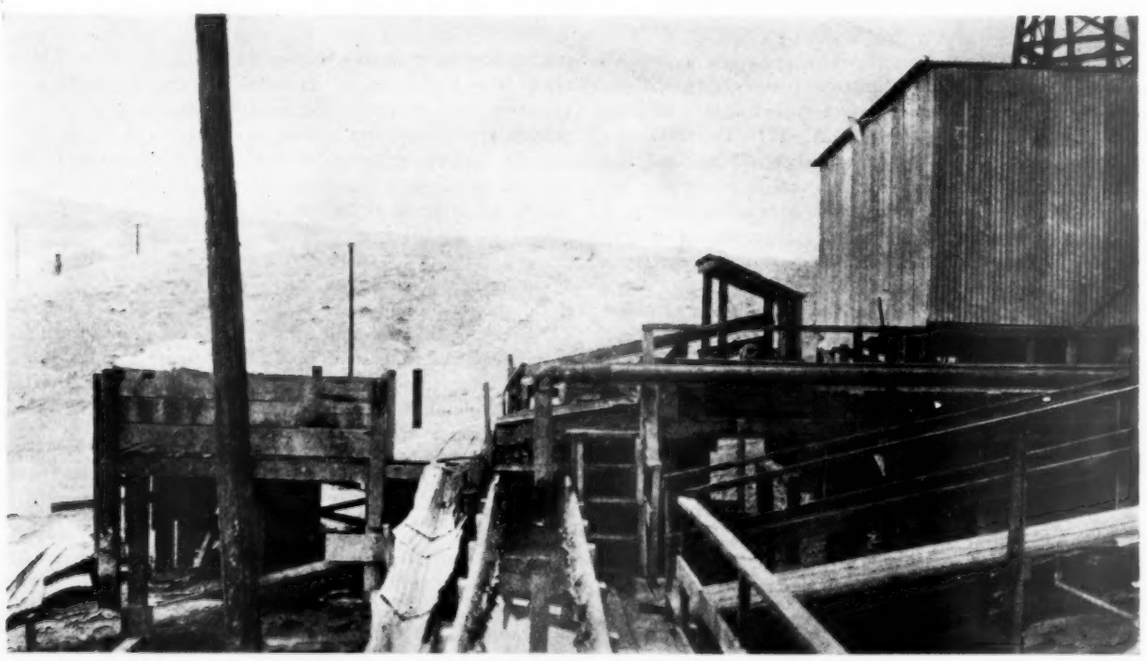
When the installation was first made, the sand and cutting were allowed to fall near the bottom of the screen. This necessitated almost constant removal of these cuttings and added to labor costs. The galvanized iron trough was installed and enough water played on the drop at the lower end of the screen to carry the coarse materials to a safe distance. This eliminated the extra labor cost. The well has the natural advantage of a hillside location, however, besides being far removed from an inhabited district. It might be possible to design the proper decline at any well, the flow of water partially governing the efficiency of the removal. When certain formations were drilled through, the sand and shale cuttings accumulated at a rapid rate, giving some idea of the reasons for former pump repairs and addition of fresh mud.

When this article was prepared, the installation had been in use 920½ hours. During the time, the screen cloth had been replaced four times. There was no further cost of replacements. The operating cost, which included chiefly power and water, was about $2 per day. The same mud had been used since July 23, the date of installation, without interruption or substantial additions. No pump parts have been replaced during the period, while the pump had not lost suction during drilling operations.

The elliptical action of the screen causes a portion of the materials not wanted in the mud to form into small balls. These balls often carry a percentage of very fine sand which might otherwise find its way through the screen.

A large by-pass around the vibrating screen has been installed for emergenices. It empties into the ditch below the screen.

The average cost of changing rotary drilling mud in the Maricopa district runs between 40 and 50 cents per barrel; so it is evident that constant reclaiming of the original mixture is a very profitable practice.



Side view of installation, showing mud ditch leading to sump, galvanized trough for carrying away cuttings and sand, and by-pass

Barbers Hill Dome Pictured *As* Cone With Point Down

By JACK LOGAN
Staff Representative

BARBERS Hill salt dome, Chambers County, Texas, which has assumed a particularly interesting role during the past two years in Gulf Coast field development by virtue of its deep producing horizons, mostly more than a mile deep, is now a source of much interest and speculation from another standpoint. For it has been found there that an overhang or ledge is present practically all around the outer edge of the dome, such a condition having been revealed by now on all sides through wells penetrating small or great thicknesses of cap rock and rock salt and then passing back into regular sedimentary formations.

Overhangs have been noted in rare instances on several other Gulf Coast domes, including Vinton and Anse La Butte, in Louisiana, but Barbers Hill furnishes the first example of a dome where the overhang is known to extend entirely around the structure, and by virtue of that continuous ledge it has been likened to an opera hat or a mushroom. The regular Gulf Coast salt dome, in contrast, is usually pictured as a great buried hill or mound of salt, flattened or rounded on top, covered with a shell of hard cap rock on the crest, and sloping downward and outward on the edges to an unknown depth to form a huge, truncated cone, larger at the base than at the top.

Speculation as to the origin or cause of the overhanging at Barbers Hill and on the few other domes where it has been noted has led to the suggestion of various explanations by different geologists. Several of the theories will be discussed presently. One of them has apparently been disproved in so far as Barbers Hill is concerned, but the others are not inconsistent with existing evidence. One of them is particularly fascinating, for it questions the authenticity of the above mentioned popular conception of a salt dome as applied to Barbers Hill and possibly some other domes, asserting that instead of being like a hill or mound, that particular dome may have the general form of a great ice cream cone, large at the top and sloping off toward a point at the bottom. Before those theories are discussed, however, more detailed information will be presented regarding the Barbers Hill dome.

The overhang was first noted there about three years ago when Humphreys Corporation drilled through cap rock and back into regular formation in Kirby B-5, on the northeast flank of the dome. In the subsequent deep development on that side of the field it came to be regular practice to drill through that ledge of cap rock in reaching the mile-deep oil producing sands, and finally, about a year ago, Humphreys Corporation drilled not only through a ledge of cap rock but also through some salt before reaching the producing horizon.

During the past several weeks drilling through hundreds of feet of salt and back into sands and shales has become somewhat common at Barbers Hill, and by now at least 25 wells have drilled through overhanging cap rock, while no less than nine wells in the field have drilled through salt and back into sedimentary formation. While the overhang has been penetrated most commonly on the northeast side of the dome, due perhaps to greater activity along that sector, it has also been found on the north, northwest, west and south flanks. Its presence on the north, northwest and west flanks was revealed only during the past few weeks.

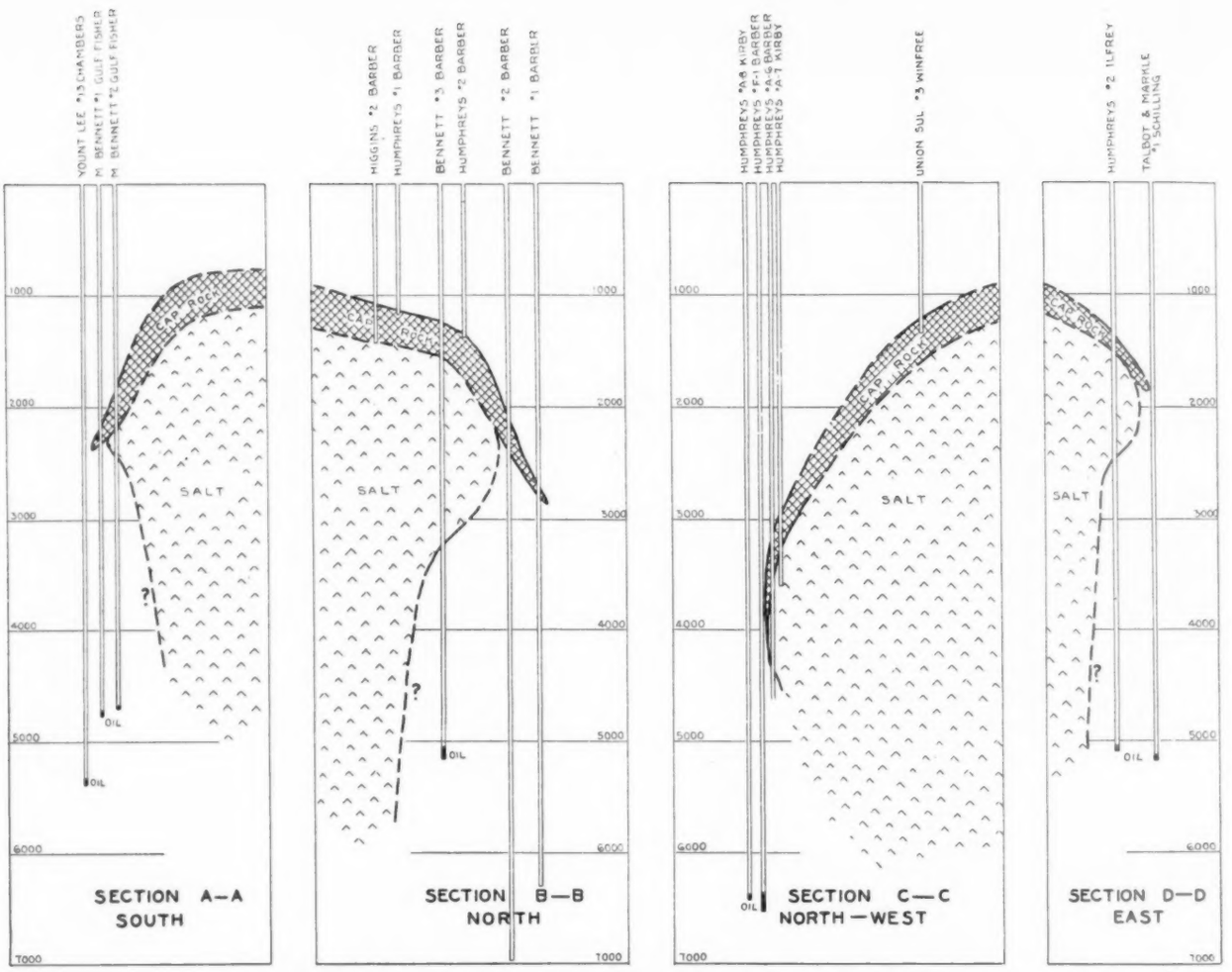
Mills Bennett Production Company's Barber 3, recently completed as a 1400-barrel flowing well at 5005-5147 feet, holds the record of the field for penetrating the greatest thickness of overhanging dome formation. It is near the center of the north flank of the dome, and it came in as the best producer so far completed on that extreme north flank. It drilled through 1985 feet of cap rock and salt, logging 344 feet of cap rock from 1213 to 1557 feet, and 1641 feet of salt from 1557 to 3198 feet, passing then into sands and shales. Incidentally, before reaching the 142-foot sand section in which it was completed, it penetrated several good oil sands which were considered capable of yielding production in commercial quantity.

On the northwest side of the dome Humphreys Corporation has gone back into sand and shale formation in Barber A-6, after logging salt for 749 feet, from 3581 to 4330 feet. That well holds the record of penetrating the deepest overhang or ledge of salt encountered in the field. It had drilled through sand and lime from 3117 feet to the top of the salt, the lower half of that thickness being true cap rock. That well is 250 feet south of Humphreys Corporation's Barber F-1, at present a 350-barrel producer. The latter is a south offset to the same company's Kirby A-8, prolific 6400-foot well which is still flowing around 550 barrels daily after having yielded around 700,000 barrels of oil since it blew in January 4, 1930.

On the south flank of the dome salt was drilled through in Mills Bennett Production Company's Fisher 2 and in Yount-Lee Oil Company's Chambers County Agricultural Association 15.

On the northeast flank at least four wells have penerated salt. One of the earliest was Humphreys Corporation's Ilfrey 2, which drilled through 878 feet of salt between 1531 feet and 2409 feet in January, 1930. It was later completed for 1062 barrels daily at 5060-87 feet. Three other wells of Humphreys Corporation on the northeast flank of the dome have drilled through salt ledges. They include Fitzgerald 1, which logged salt and shale from 1936 feet to 2567 feet; Barber B-1, which penetrated the salt from 2085 feet to 2722 feet; and Kirby B-8, which passed through 920 feet of salt, from 1631 feet to 2551 feet. Humphreys Corporation's Morgan 1, on the north flank, logged cap rock from 2174 to 2313 feet, salt from 2313 to 2544 feet, and was completed for 200 barrels daily in sand and sandy shale at 6310-6404 feet.

On the extreme western side of the Barbers Hill dome deep drilling has been very limited, and no salt ledge has been drilled through, but one well, Sun Oil Company's O. K. Winfree 1, drilled through approximately 850 feet of broken cap rock from 3950 feet to 4800 feet and then went back into



CROSS SECTIONS OF CAP ROCK AND SALT ON VARIOUS FLANKS OF BARBERS HILL SALT DOME

SCALE VERTICAL & HORIZONTAL

0 500' 1000' 2000' 3000 Feet

Drawn by Jno Larke

regular formation. It was subsequently completed as a 1080-barrel producer at 5328 feet, several weeks ago, and it is now producing over 900 barrels daily.

No difficulty is experienced ordinarily in drilling the salt of Gulf Coast domes, but the Barbers Hill salt is exceptionally hard, and it slows down progress somewhat, and increases the tendency of the drilling bit to deviate from the vertical. However, it is common practice in the field to survey drilling wells to keep them vertical, the great depth and narrow productive limits of the oil sands and the presence of the dome overhangs having made such surveys imperative, and most of the recent wells mentioned above as having penetrated overhangs are known to be straight.

Theories on Origin of Overhang

Any discussion as to the cause of the overhang or ledge of dome formation at Barbers Hill must involve to a certain extent the popular theories as to the origin of the domes themselves. A theory which is widely supported is that of tectonic origin, which supposes that the salt was originally deposited in embayments and lagoons during Lower Cretaceous time or earlier, and that the salt by great pressure was made plastic and was forced to flow upward in later time through later deposited and heavier formations to its present position.

In attempting to account for such mushrooming as occurs at Barbers Hill there is an explanation which readily offers itself from that theory of dome origin. According to that theory the dome mass is usually pictured as a truncated cone, it being reasoned that such form would afford least resistance in the upward flow of the salt. If all those suppositions are true, it is reasonable also to assume that resistance offered by the sediments through which the salt was forced caused a blunting of the top of the cone, the blunting in some cases as at Barbers Hill, amounting to a mushrooming, or a curling back under of the ledge of the top of the dome.

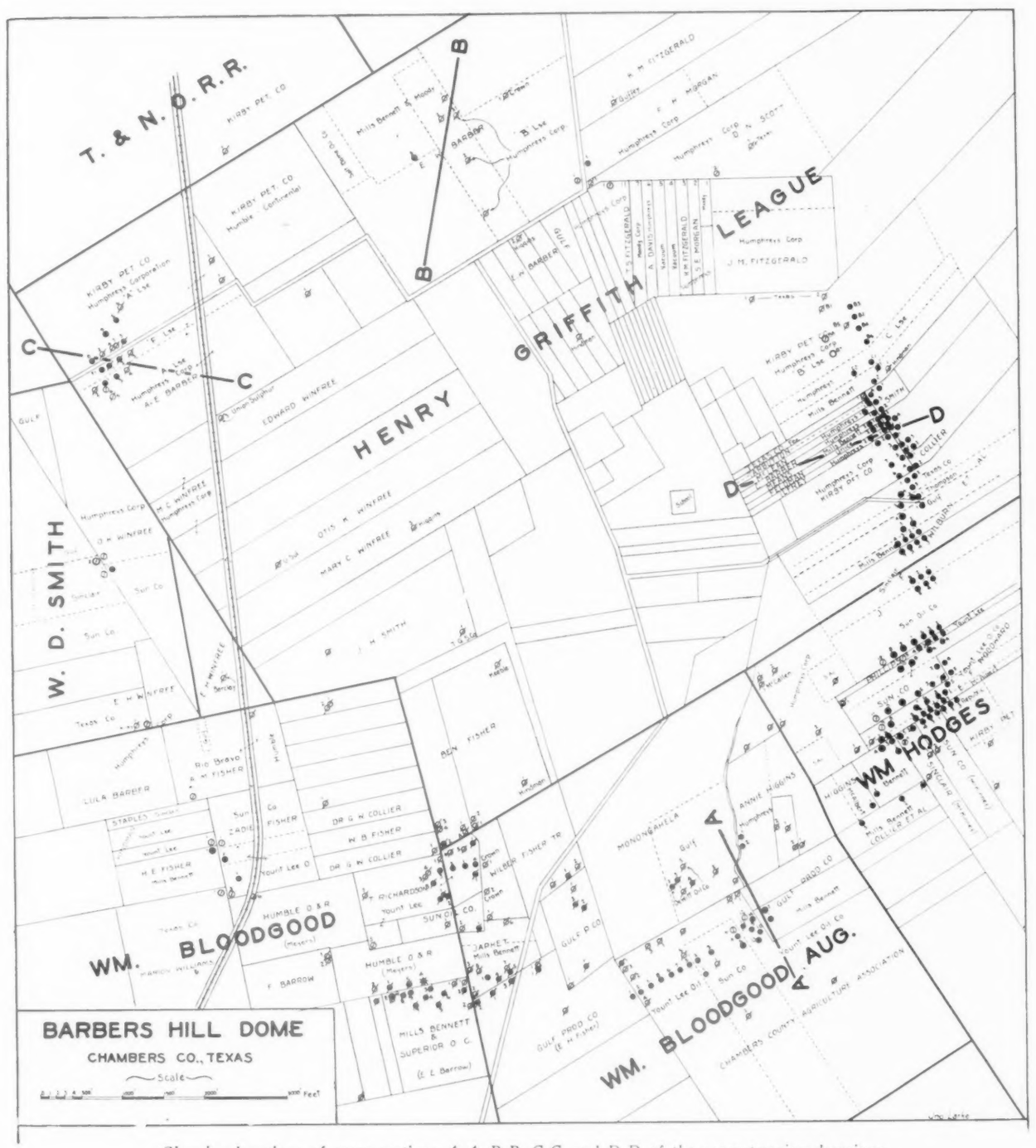
Another explanation for the existence of an overhang on a dome is that instead of being thrust upward vertically, the dome was pushed up at a slight angle, the dome as a result being slightly tilted to one side, thus affording the overhang or ledge on that side of the dome. That theory, in view of the finding of the similar overhangs on all flanks, appears to have been disproved in the case of Barbers Hill, at least.

Still another explanation which has been offered, and which does not conflict with actual findings at Barbers Hill, is that

the overhang was formed through long ages by underground waters dissolving out great caverns from the upper portion of the salt plug just below the cap rock covering of the dome.

Radical as compared with the above theories, an entirely different explanation is suggested by one geologist minutely familiar with Barbers Hill dome. To begin with, he makes it clear that he does not know what caused the overhang—that no one knows positively, and cannot know until there is more deep drilling and more evidence from which to draw conclusions. But simply as a possible explanation he offers the following ideas. All available evidence at Barbers Hill, from actual records of wells, he points out, pictures the salt mass as reaching certain definite limits along a circular plane section, and as receding then back downward, not in an outward direction but inward. In other words, from all evidence offered up to now through well logs the dome mass is like a huge ice cream cone or a balloon, large in diameter at the top, but diminishing in diameter toward its base.

There is no evidence at all to assume that the salt mass after receding inward for some distance then turns back outward to form a cavern along its wall or even that it changes its direction to slighter extent to fall off vertically to its base. For no well in the field which has passed through a salt ledge has passed again back into salt. And furthermore, deep tests located directly off the edge of the top of the dome have failed ever to reach salt. Yount-Lee Oil Company's Chambers



Showing locations of cross sections A-A, B-B, C-C, and D-D of the accompanying drawings

County Agricultural Association 4, on the southeast side of the dome, located only 400 feet beyond a well which hit salt at shallow depth, was drilled to 8148 feet and never reached the cap rock or salt. In other deep tests along the edges of the dome the formations at the bottom of the wells did not give any indication of proximity to salt mass.

This idea that the dome at Barbers Hill may be large in diameter at the top but smaller toward the base, is of course in opposition to the general conception of a salt dome, as explained above. Furthermore, it is in contradiction to the theories which the geophysicists advance regarding domes which they have investigated. The torsion balance men not only picture the ordinary Coastal salt dome as a huge truncated cone, but they even estimate its height, placing the base of the mass in some instances at depths ranging from 15,000 to 30,000 feet below the surface.

Nevertheless, the conditions which the geophysicists have found on those domes which they have studied may not prove to exist on all domes, and should the Barbers Hill dome prove after all to have the general form of a balloon or of an ice cream cone, the way in which it was formed might be explained rather easily. The explanation does not conflict with the above discussed theory of salt dome origin, but it involves a slight modification of detail of the building up of the dome. Assume that the salt was deposited originally in Paleozoic time, occurring in a Permian basin. Then it would have been covered successively by relatively small thicknesses of Triassic and Jurassic formations, provided they were present in this area, then by the Cretaceous sediments and then the Tertiary, the latter of which are regularly drilled at Barbers Hill. Assume now that a fault occurred in the supposedly thick Edwards or Georgetown limes of the Lower Cretaceous, allowing the salt to break through from below. That might have been the beginning of the dome. How deep below the surface the Edwards lime would be found at Barbers Hill is conjectural, but suppose it to be 15,000 feet. Then that would be the bottom of the dome, with respect to the surface. Then beginning at the fault in the lime, according to the above assumption, the salt flowed upward, spreading out as it rose, until the cone was formed.

As admitted previously, this is a radical theory, and it is suggested as applying to Barbers Hill and some few other domes, although in general most domes would likely proceed from a large base, particularly if the salt first started to arch in the form of an anticline. A fault instead of an anticline would restrict the area of the opening in the Cretaceous limestones through which the salt rose, and accordingly tend to produce the mass suggesting an ice cream cone, small at the base and large at the top.

Radical as it may be, however, the suggested theory seems to be substantiated at Barbers Hill; or to say the least, there is no evidence there as yet to disprove it. The real test of the theory, of course, will be the drilling of very deep wells nearer to the center of the dome to see if they will ultimately pass out of salt, like those that have been drilled near the outer edges of the dome.

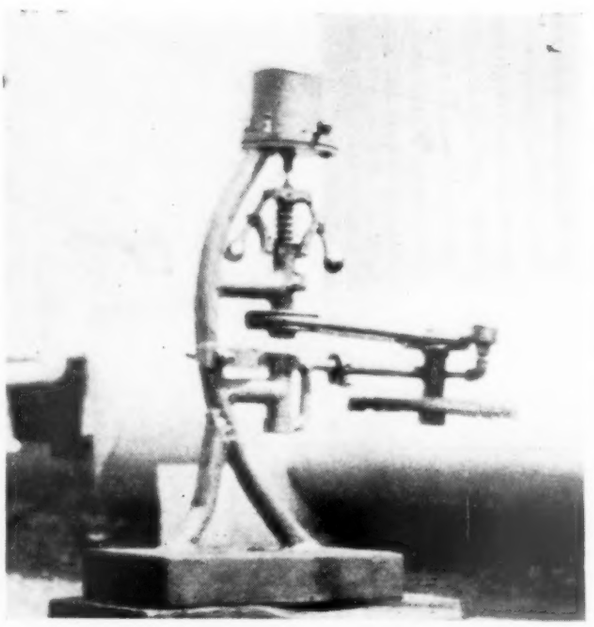
Evidence is largely lacking as to the possibility of other domes being similarly shaped, for in the past it has been customary to abandon wells after drilling a few feet into cap rock or salt. To prove the presence of a ledge or overhang, of course, requires the drilling in some cases, as in some of the wells at Barbers Hill, of hundreds of feet of salt.

At any rate, this condition at Barbers Hill is of a great deal of interest, and it may prove of importance in development of other Gulf Coast domes. For henceforth the salt dome operators, drilling wells along the outer edges of the domes, will probably not be content merely to drill to the top of the cap rock or salt, but will consider the possibilities of drilling on and possibly again reaching oil-bearing formations.

Alarm Device Lets Pumper Sleep Unless Things Go Wrong

DURING the daylight period it is a simple matter for the pumper to keep his power house in good running order for there are many routine jobs to be done and he is seldom far enough removed from the vicinity that he cannot hear the exhaust from the engine. At night it is a different question. Many pumpers claim to develop an instinct or sixth sense which will awaken them when the engine goes out of commission. W. P. Johnson, formerly pumper for Skelly Oil Company in the Burbank pool, not wishing to be burdened with the development of an instinct or special sense, devised an alarm system which is fool-proof and calculated to awaken even the soundest sleeper.

The essential parts of the device are a drive wheel which works by friction against the idler, a pair of governors, and an electrical contact box. When in use the drive wheel is thrown against the adler and, upon attaining normal pumping speed, the governors rise, pulling the contact pin down and breaking contact in the box. If for any reason the engine starts missing, goes dead, or the belt breaks, slowing down or stopping the idler, the governors drop, force the pin upward, and make contact. Bells are placed in the power house and in the pumper's home and at any other points desired.



Unit Operation Gets Most Time *On Institute's* Production Program At Chicago

NEW YORK.—More than 60 scheduled sessions of committees and other groups, 35 additional sessions for which hours have not been assigned, election of some 100 officers and presentation of more than 30 general and technical papers on problems of the petroleum industry are features of the program for the eleventh annual meeting of the American Petroleum Institute. The affair will be held November 10 and 13 in the Stevens Hotel at Chicago.

PERTINENT FACTS ABOUT THE ELEVENTH ANNUAL A. P. I. MEETING

Affair—11th annual meeting, American Petroleum Institute.

Place—Stevens Hotel, Chicago, Illinois.

Date—November 10, 11, 12 and 13, 1930.

Expected attendance—4000.

Number of meetings—90 plus.

Subjects for discussion—disposal of waste, fire prevention, transportation, standardization, safety, hydrogenation, research, motor fuels, unitization, drilling and production practice, marketing code, public relations, statistics, conservation, refinery engineering, accounting, methods, tests, specifications, proration, corrosion, pipe lines, marketing problems, uniform measurements, etc.

Some 4000 oil men from all sections of the country, and particularly the oil-producing areas, are expected at the meeting. Train, motor car and airplane carry them to Chicago, equipped with notebooks and pencils for days and nights of serious practical discussion of current problems. The Institute's annual meeting has earned the reputation of being a "working convention," and the slogan, "For Business Only," adopted years ago, scrupulously is observed. Distracting influences, such as exhibits and expositions, are barred. So numerous are the sessions, so great the amount of business to be consumated, so important the problems to be studied, that use of virtually every minute of the meeting hours is planned in advance.

Preparations for the annual meeting require months of time, and consequently many of those who will deliver addresses or make reports on achievements of Institute groups have been spending portions of the summer and fall at work on their projects. Preprints of papers to be presented are prepared in advance of the various sessions, so that an understanding participation in discussion is possible. Shortly after the close of the meeting, the papers presented, as well as the minutes of the various sessions, are assembled and bound for distribution throughout the petroleum industry. In this way the latest technical and general information on the industry's particular problems is widely distributed.

The preliminary program indicates that while the meeting is scheduled to open Monday, November 10, many committee members will begin their work the morning of Friday, November 7, with three committee meetings that day and five on Saturday, November 8. Twenty-four committee meetings are listed for Monday, and four for Tuesday. In addition, at least 35 other committees will meet when called by the chairman at such hours and places as are available.

The first general session will be held Tuesday afternoon. President E. B. Reeser, Barnsdall Oil Corporation, Tulsa, will deliver "The President's Address," and the principal address of the gathering will be delivered by a speaker not yet announced. Group sessions of the Divisions of Production, Refining and Marketing will be held Wednesday morning, afternoon and evening and again Thursday morning. Thursday afternoon will be given over to business sessions of the three divisions. The annual meeting will close Thursday night with the annual dinner, program for which is to be announced.

The group sessions of the three divisions will be the first to be held under the Institute's divisional organization plan, which permits men engaged in similar activities within the industry to participate in discussion work on which they are directly interested. The Wednesday morning group session of the Division of Production will consider drilling, production and pipe line transportation. The Division of Refining group session will consider refinery engineering, while the session of the Division of Marketing will be given over to a discussion of marketing problems.

Wednesday afternoon the Division of Production will consider unit operation, the Division of Refining motor fuels and the Division of Marketing the code of marketing practice. The Division of Production will have also a Wednesday evening session to continue the discussion of unit operation.

Thursday morning's session of the Division of Production will concern corrosion of oil field equipment. The Division of Refining will consider petroleum refining and the Division of Marketing will take up the subject of automotive transportation.

Prominent among the speakers are Dr. George Otis Smith of the United States Geological Survey; Gordon N. Scott, United States Bureau of Standards; T. A. Boyd, General Motors Corporation; W. H. Graves, Packard Motor Car Company; H. S. Taylor, Princeton University; T. E. Swigart, Shell Oil Company; John Franklin Dodge, University of Southern California; H. E. Dralle, Westinghouse Electric and Manufacturing Company; K. H. Logan, United States Bureau of Standards; H. D. Collier, Standard Oil Company of California; Eugene Power, Union Oil Company of California; and Charles H. McBurney, Marathon Oil Company.

Directors of the Institute will hold a luncheon meeting each noon. The executive committee will meet Thursday at luncheon. General committees of the three divisions will meet each evening. The Board of Councillors will meet Tuesday morning to nominate candidates for mem-

bership on the board of directors. The election will be held at the general session Tuesday afternoon.

Officers whose terms expire this year are:

President, E. B. Reeser, Barnsdall Oil Corporation, Tulsa; vice-president, L. P. St. Clair, Independent Oil Producers' Agency, Los Angeles; vice-president, production, W. N. Davis, Phillips Petroleum Company, Bartlesville, Oklahoma; vice-president, refining, W. M. Irish, The Atlantic Refining Company, Philadelphia; vice-president, marketing, Henry M. Dawes, The Pure Oil Company, Chicago.

Thirty-two vacancies on the board of directors, caused by expiration of terms, also are to be filled. Five vacancies in the group of nine directors representing the industry at large will be filled by election by the present board, while 27 others will be nominated by the Board of Councillors and elected by the general membership.

Three of the vice-presidents automatically become chairmen of the divisional general committees. Members of the three divisions are to elect 20 members of each general committe and five members will be appointed by the board of directors.

Division of Production

GROUP SECTIONS

Wednesday, November 12, 1930
9:30 A. M.

DRILLING, PRODUCTION, AND PIPE LINE TRANSPORTATION: (South Ball Room)

(Sponsored by Central Committee on Drilling and Production Practice, T. E. Swigart, Chairman).

Selection of Oil Well Casing Based on California Practice.
J. R. Gignoux, Shell Oil Company.

Improvements in Production Practice.
W. W. Scott, Humble Oil and Refining Company.

Welding High Carbon Steel.
(Speaker to be announced).

The Mechanics of Oil Well Pumping.
H. E. Dralle, Westinghouse Electric and Manufacturing Company.

2:00 P. M.

UNIT OPERATION: (South Ball Room)

(Sponsored by Central Committee on Drilling and Production Practice, T. E. Swigart, Chairman; and the topical committees on Drilling Practice, E. G. Gaylord, Chairman, and Production Practice, W. W. Scott, Chairman).

Land and Lease Aspects of Unit Operation.
John P. West, Prairie Oil and Gas Company.
(The Mid Continent Sub-committees on Drilling and Production Practice, cooperating).

Santa Fe Springs California Field—A Comparison Between Competitive and Unit Operation.
John Franklin Dodge, University of Southern California.
(The California District Sub-committees on Drilling and Production Practice, cooperating).

Unit Operation in the Van (Texas) Pool.
R. B. Kelly, Pure Oil Company.
(The Southwestern District Sub-committees on Drilling and Production Practice, cooperating).

8:00 P. M.

UNIT OPERATION: (Grand Ball Room)

Address:
George Otis Smith, United States Geological Survey.

Engineering and Economic Phases of Unit Operation.
T. E. Swigart, Shell Oil Company.

Address:
(Speaker to be announced).

Thursday, November 13, 1930
9:30 A. M.

CORROSION OF OIL FIELD EQUIPMENT: (South Ball Room)

(Sponsored by Committee on Corrosion of Oil Field Equipment, E. P. Bly, Chairman).

Report of Production Corrosion Committee.
E. P. Bly, Chairman.

Report on Bureau of Standards Soil Corrosion Work of 1930.
K. H. Logan, U. S. Bureau of Standards.

Report of A. P. I. Research Associate.
Gordon N. Scott, U. S. Bureau of Standards.

Pipe Protection—Why and How.
Underground Pipe Protection Institute (presented by W. H. T. Thornhill, secretary-treasurer).

Pipe Line Corrosion.
J. F. Putnam, Standard Oil Company of California.

Corrosion of Production Equipment.
(Speaker to be announced).

2:00 P. M.

BUSINESS SESSION: (South Ball Room)

Report of William N. Davis, Chairman of General Committee.

Reports of Chairman of Standing Committees, as follows:

Central Committee on District Activities.
T. E. Swigart, Shell Oil Company.

Central Committee on Standardization.
John R. Suman, Humble Oil and Refining Company.

Committee on Safety.
George F. Prussing, Union Oil Company of California.

Central Committee on Standard Procedure for Measuring, Sampling, and Testing Crude Oil.
W. S. Farish, Humble Oil and Refining Company.

Committee on Fire Prevention.
R. W. Pack, Sun Pipe Line Company.

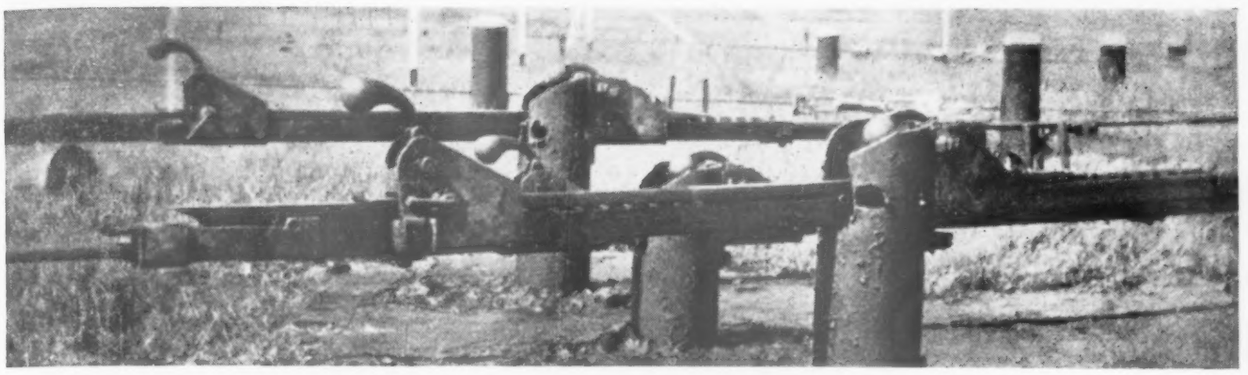
Committee on Disposal of Production Wastes.
V. L. Martin, Prairie Oil and Gas Company.

Committee on Automotive Transportation.
R. F. Fike, Mid Continent Petroleum Corporation.

Election of Twenty Members of the General Committee.

Report of Nominating Committee.
F. R. Coates, Chairman.

Discussion of Divisional Activities.



Installations in three heavy wells in the Burbank Pool

Hook-off Adjuster Popular at Burbank

IN the effort to design pumping equipment for long life under hard useage, manufacturers apparently have given little attention to the minor itelms. Sucker and shackel rods have been greatly improved through study of the causes of breakage, principally because they were the source of most of the pumping difficulties and played a large part toward increasing lifting costs. Other major parts of the pumping equipment have also been improved.

During the past two years one of the machine companies in the Burbank pool has perfected a hook-off adjuster which is gaining in popularity in that field and likely will be widely used as soon as the manufacturers' facilities have been increased to permit large scale production. It is designed to replace the old fashioned hook which was a menace to safety and, in the case of pumping exceptionally heavy wells, was not always satisfactory. The new device permits the adjustment of the position of the jack and the corresponding position of the plunger without hooking the well off from the power, eliminates the need for tractors in "bumping" wells, and incorporates a high degree of safety both for the pumper and for the equipment under his care.

The principal parts of the hook-off adjuster, as shown in the diagram, are: a pull rod (F), into which teeth approximately one inch across the top have been cut, a guide through which the pull rod slides, a shackle rod connection (A), two dogs (D and D'), D being welded to the pull rod guide and D' bolted to a supporting pipe which is made from a short piece of used 10- or 12½-inch casing, and two slides which control the action of the dogs. The power end is connected to the guide and the well end to the pull rod in such a way, that, with both dogs disengaged from the teeth, the guide is permitted to respond to the eccentric action from the band wheel and the pull rod and shackle rod line remain stationary. Upon engagement of dog D with the teeth, the pull rod and guide are locked together and the well starts pumping with the whole device in motion. The slides are cut out in the center as shown in the diagram, permitting, in certain positions, the dogs to drop down and engage the teeth. In this way the lengthening and shortening of the device is controlled by the position of the slides.

At the position of the device as shown, the jack would be down and the plunger on bottom, if it is desired to pick the well up gradually, the slides are set so that dog D drops down at any desired point on the out stroke from the power and at the end of the back-stroke, Dog D becomes engaged and holds it at that point. On the next outstroke, the slide is set to permit the dog D to drop farther back. In this manner the well may be picked up one tooth at a time or in one operation if desired. In "bumping" wells, the plunger is lowered below the working point, the dog D picks up and D' prime remains disengaged. The length of the bumping stroke may be regulated by the position of the dog. Should any break occur between the hook-off and the well, the collar (A) on the shackle rod connection strikes the sharply sloping end of the pull rod and is forced downward. The projection (C) in the connection becomes disengaged from a recess in the pull rod and the connection and rod drop to the ground permitting the main part of the device to move without further damage to any of the equipment.

One of the hook-off adjusters has been in use in the Burbank pool for three years without breakage and several others have given like service for many months. Mid-Continent Pipe and Machine Company, Limon, Oklahoma, manufactures and distributes the adjusters.

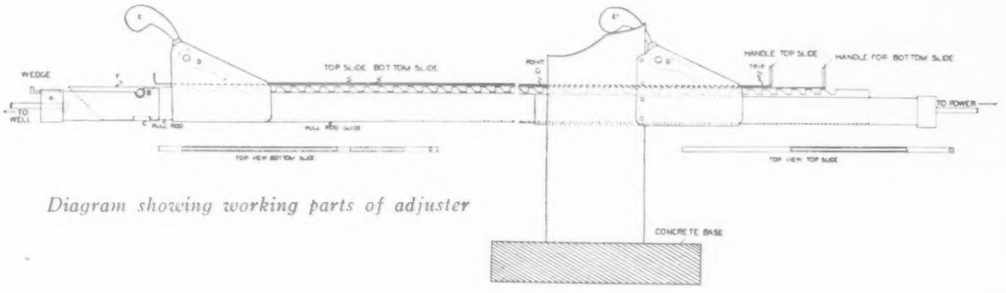


Diagram showing working parts of adjuster

Events of Interest at

Sinclair Team Wins Annual First Aid Contest

TULSA.—The sixth annual first aid contest of the safety division, Mid-Continent Oil & Gas Association, was held at the International Petroleum Exposition, on Thursday, October 9, with 14 teams, representing oil companies in four states, entered in the competition. Five difficult problems, involving all of the conceivable injuries which might be sustained in the oil fields, were used to test the knowledge of first aid methods.

Sinclair Oil & Gas Company's Healdton, Oklahoma team won first place in both the regular competition and in the resuscitation problem for which a special cup was awarded by E. D. Bullard Incorporated. Humble Oil & Refining Company, Baytown, Texas, was runner-up, and Freeport Sulphur Company, Baytown, Texas, placed third. R. E. Miller, in presenting the awards, announced that the percentage of difference between the three teams was so small as to make it difficult for the judges to decide which should be placed first, second and third. The contest was concluded with a banquet in the Crystal Ball room of the Mayo Hotel with approximately 200 in attendance. Omer K. Benedict, toastmaster, introduced W. G. Skelly, who spoke on safety from the viewpoint of the industry, and Isaiah Hale of the Santa Fe Railroad system, who gave an inspiring address on the responsibility of the supervisor to the men under his direction. Harry Fowler, acting chief petroleum engineer for the United States Bureau of Mines, was introduced to the assembly and thanked for the active part taken by himself and the Bureau of Mines in first aid training in the oil fields.

Contesting teams were as follows:

Sinclair Oil & Gas Company, Healdton, Oklahoma

Captain ..... J. L. Ashford
Judge ..... J. A. Robison
L. C. Jones — Ambrose Nicholson
Flave E. Space — J. A. Stribling
Walter A. Nicholson

Humble Oil & Refining Company, Baytown, Texas

Captain ..... A. L. Alford
Judge ..... H. C. Liccioni
W. F. Spear — Mr. Kilgore
C. P. Blanchard — Kirby Norris
J. L. Hart

Freeport Sulphur Company, Freeport, Texas

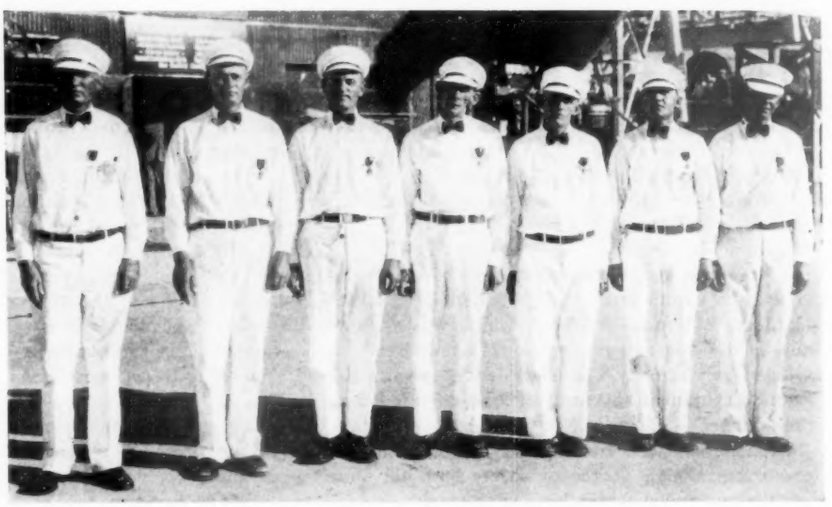
Captain ..... W. O. Smith
Judge ..... J. C. Evans
H. M. Keith — Walter L. Barnard
E. J. Ledet — Joe B. Barnard
P. P. Matukas

Dewey Portland Cement Company, Oil Division Dewey, Oklahoma

Captain ..... John A. Myers
Judge ..... James R. Smith
D. M. Turley — J. T. Bale
M. S. Helms — Brady Chance
Ray A. Duncan

Dewey Portland Cement Company, Oil Division Dewey, Oklahoma

Captain ..... C. M. Dyson
Judge ..... Grover Berryhill
Paul Guinter — Cecil Miller
Fred Esser — Charley Galloway
George Gilliland



The winners—Sinclair Oil & Gas Company's Healdton team

Phillips Petroleum Company, Whittenberg, Texas

Captain ..... L. E. Cates
Judge ..... J. G. Carrol
C. B. Reed — Jack Walker
Al Harrell — A. L. Cook
C. H. Walters

Marathon Oil Company, Bristow, Oklahoma

Captain ..... C. B. Loban
Judge ..... J. P. Yadon
Lester Johnson — L. E. King
Ray King — Russell Seeberger
Lloyd Franklin — Substitute, Wilburn Smith

The Ohio Oil Company, Sandovial, Illinois

Captain ..... Mabin Wood
Judge ..... Sherman Hawley
E. A. Goodwin — Olaf Bundy
Herbert Myers — Roy Goodwin
Clyde Pratt

The Ohio Oil Company, Shreveport, Louisiana

Captain ..... W. T. Craig
Judge ..... M. D. Ray
A. D. Shropshire — Carl Wadlington
E. E. Chainey — Homer Bowman
G. W. Thomas

The Tulsa Exposition

Lone Star Gas Company, Dallas, Texas

Captain.....Horace C. Ferguson
Judge.....F. E. DuBois
D. W. Reedy — Olen R. Paschall
Theo. M. Brady — Jas. M. Kuykendall
Ross B. Fryer

Empire Oil & Refining Company, Ponca City, Oklahoma

Captain.....Fred Gerber
Judge.....Mr. Lectenberg
Roy Davis — Earl O'Bryant
C. A. Barnes — James Crawford
E. E. Moore — Substitute, Bing K. Thomen

Empire Oil & Refining Company, Gainesville, Oklahoma

Captain.....W. B. Leach
Judge.....Walter Thomas
J. A. Witherspoon — Louis Bosley
Arthur Herman — Marvin Garrison
Roy Erwin — Substitute, Tom Berry

Empire Oil & Refining Company, Okmulgee, Oklahoma

Captain.....S. G. Rhodes
Judge.....R. B. Pentland
R. L. Christian — Geo. Frey
L. W. McAlester — R. V. McGrath
J. S. Higdon — Substitute, Don Steen

Herndon Sees Unit Operation Cure for Overproduction

TULSA.—In reviewing his term as president of the Kansas-Oklahoma division of the Mid-Continent Oil & Gas Association, C. C. Herndon, vice-president of Skelly Oil Company, gave it as his opinion that proration is the temporary vehicle through which over-production must be handled, while the unit plan of field operation will come as a permanent method of dealing with the flush yield of new pools. He was speaking here the night of October 8 at the annual banquet of the Mid-Continent Oil & Gas Association.

During his term as president of the organization, Mr. Herndon has also been chairman of the proration committee of that body. He said the association had given a great deal of its time to the study of facts upon which proration orders are issued by the Oklahoma Corporation Commission and that it would, if necessary, continue to do that.

The honor of "Grand Old Man of Tulsa" went to J. J. Larkin of Larkin Torpedo Company

"No one," he said, "would rejoice more than I if we could dispense with proration. But we are faced with a condition in which that is not possible. We can not permit this industry to revert to the jungle law; that law of every man for himself.

"The principle of unit operation has already been adopted in a number of important pools. It is sponsored by the American Petroleum Institute as well as other organizations. The leaders of the industry look to the unitization as the ultimate solution of our difficulties but realize also that in the present emergency the continuance of proration is indispensible."

E. H. Sloan of Pittsburgh, left, selected as "Grand Old Man of the World" at the seventh International Petroleum Exposition and Congress. Barney Horrigan of Tulsa, chairman of the Old Timer's Committee, is shown after pinning the trophy on the man, who has spent 68 of his 85 years in the petroleum industry

John M. Lovejoy, president of Mexican Seaboard Oil Company, spoke at some length on the charges of George S. Kelley to the effect that the petroleum industry has acquired extensive shale deposits by methods not wholly in keeping with governmental regulations. Mr. Lovejoy said it was unfortunate that any time of officials should have to be given to investigating the charges when all the efforts of the departments are needed to adjust the situation that faces the government and the petroleum industry because of the Kettleman Hills field in California. He classed the shale deposits as something which the independent element of the petroleum industry could not embrace and gave it as his opinion that the profitable working of shale for its oil must wait many years until oil sands have been further depleted and coal has contributed its share in providing gasoline.

Edward Ford, a noted humorist and after dinner speaker, was the principal speaker of the banquet, which is an annual affair during the week of the International Petroleum Exposition and Congress.

Alvin Richards, attorney for Pure Oil Company, with headquarters in Tulsa, was elected president of the Kansas-Oklahoma division of the association in the afternoon previous to the banquet. He was introduced at the banquet.

At the business meeting in the afternoon, Rush Greenslade, vice-president of Gypsy Oil Company, was elected first vice-president of the association. Thomas C. Johnson of Wichita was chosen a vice-president for Kansas. John H. Kane, vice-president of Phillips Petroleum Company, Bartlesville, was re-elected vice-president for Northern Oklahoma, while Wirt Franklin of Ardmore was re-elected vice-president for Southern Oklahoma.

Harry H. Smith of Tulsa was re-elected secretary for the Kansas-Oklahoma division, a post he holds also for the general association.

Effect of Edge Water on the Recovery of Oil

By H. H. WRIGHT
Petroleum Engineer, Gypsy Oil Company

Paper read before American Institute of Mining and Metallurgical Engineers, Tulsa and Los Angeles, 1930

IN many fields edge water is one of the most important factors governing the production of oil. Possibly this fact is not appreciated by many producers except in so far as it may bring about a loss in production from wells drilled on the flanks of structures. In the light of artificial flooding as practiced in New York and Pennsylvania, and of the beneficial effect of natural water-flooding on many wells and leases in the Mid-Continent and elsewhere, it seems reasonable to suppose that very few phases of the petroleum industry hold greater promise for future benefit than the study and control of the natural water drive.

Rate of Water Encroachment

The rate of movement of water in artificial flooded areas has been referred to as so many feet per unit of time, usually from an injection well toward surrounding producing wells. This definition is vague when used in reference to the movement of natural edge water, inasmuch as such factors as sand thickness, steepness of dip and horizontal extent are not considered. In the ultimate analysis, only the vertical component of movement affects the production of oil in the natural drive, and in order to define the rate of water encroachment more exactly, such a term as acre-feet per unit time might be used. Thus, where one well is located to each 10 acres a vertical movement of five feet in the water level in a year would be defined as an encroachment of 50 acre-feet per year, and where one well is located to each 20 acres, as 100 acre-feet per year. Such a definition as this is entirely arbitrary, but it takes into consideration to a certain extent the influence of well spacing, and consequent sand drainage, on the rate of water movement.

The rate of movement is considered to be an important function of water encroachment, for it is believed that the efficiency of recovery by natural water flood depends a good deal upon the rate of movement. In general, rapid encroachment is thought to effect a poor recovery because of the differential in favor of the movement of water through a sand body and the consequent tendency to trap oil in the sand. Slow movement, on the contrary, is thought to bring about a partial displacement of oil from the sand pores and to move oil up the dip with little by-passing. This effect may be illustrated by the well sustained production of some edge wells, where only a small amount of water is produced over a considerable period of time. It may be contrasted to wells having a more or less normal decline up to a certain point, after which the rate of oil production is suddenly increased and maintained over a short period with a subsequent extremely rapid decline in oil production and increase in water. Wells of the latter type appear to be more particularly those from which oil has been produced at a rapid rate, such as air-gas lift wells, or those in small pools where the structure has been completely drilled in a short time. However, this effect has been observed in wells not of either of these two types, indicating that other factors influence the rate of travel. This may introduce the observation that wells evidence a capacity for water production.

Production data on two adjacent wells in the Earlsboro field, having similar structural positions, illustrate the apparent capacity for water production. These data are shown graphically in Figure 1, and appear to indicate that both wells reached their capacity for water production at about 530 barrels daily. It appears significant that while well No. 1 reached a maximum fluid production in excess of 800 barrels daily in the first part of 1929, it produced a maximum amount of 530 barrels of water when the total fluid production was as low as 670 barrels daily. Well No. 2 produced a maximum of 540 barrels of water daily when the oil production was 150 barrels. The decrease in oil production from 150 to 45 barrels apparently did not increase the capacity for water production, for in February, 1930, the well produced 530 barrels of water and 45 barrels of oil. The evidence from these two wells indicates that the maximum rate of water movement through the sand had been reached for the existing conditions of water head and sand characteristics related to these wells, particularly in view of the fact that well 1 has 26 feet of sand penetration as compared with 14 in well 2.

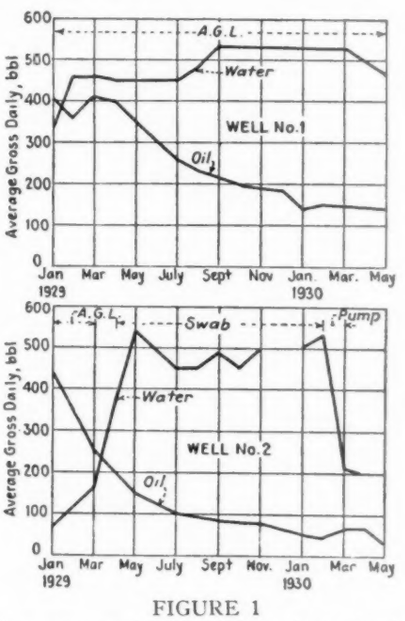


FIGURE 1

Capacity for water production of two adjacent wells in Earlsboro field

That the rate of water encroachment in different fields varies is illustrated in the Greater Seminole area, where water encroachment has been more rapid in some pools than in others. In the Seminole City pool, 13 representative wells had an average elapsed time of 618 days between completion and

the day that water appeared. In the Mission pool the average time was 272 days for eight representative wells. The recoveries from these pools will serve as examples of the effect of natural water-flooding. All evidence tends to indicate that three factors mainly control rate of water movement. These are : (1) pressure head on the water; (2) sand permeability, or resistance to flow; (3) rate of depletion of oil and gas content.

Effect of Water Encroachment

It is customary in production-control work to make use of type decline curves which represent the average performance of a number of wells. Often such curves are influenced by

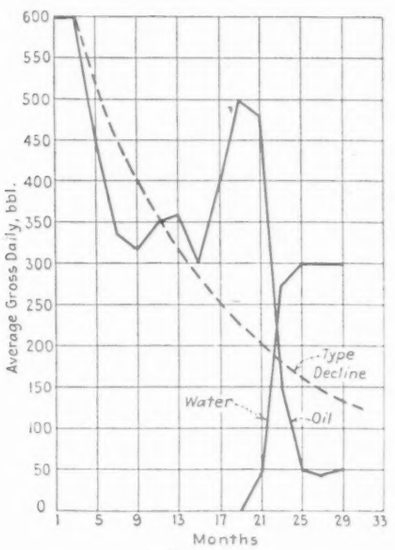


FIGURE 2

Seminole well influenced by rapid water encroachment

two or more distinct types of production, as well as by several production methods. It is believed that more accurate comparisons could be made by classifying production and preparing type declines for the various classes. Ordinarily this is not done to such an extent as to allow of close comparisons.

The type decline curves shown in Figures 2 to 7, inclusive, represent the average performance of 20 or more normal wells under certain uniform methods of operation. These curves include wells influenced by varying degrees and rates of water encroachment, and represent the average expectancy of wells in the district from which they were compiled.

Figure 2 compares the decline curve of a Wilcox sand well in Seminole with the average curve for Seminole Wilcox sand wells. The production of this well has been influenced by a rapid rate of water encroachment. Figure 3 compares the decline of a well influenced by a slower rate of encroachment. Both wells were completed at approximately the same time, and obviously the more rapid rate of water movement has returned the greatest amount of oil to date. However, the slower encroachment will yield considerably more oil ultimately, in spite of the fact that the well with the slower water movement had the smaller initial production and had a rapid decline during its flush stage. It may be inferred from these examples that a controlled rate of water movement might have promoted more efficient recoveries in the well shown in Figure 2, by an increased rate of movement, and in that on Figure 3 by a retarded rate.

Figure 4 shows a Wilcox well in the same area as the wells shown in Figures 2 and 3. This well serves as an example of flush production but slightly influenced, if at all, by water head. Slowly encroaching water is maintaining a small daily production over a long period of time. Evidently

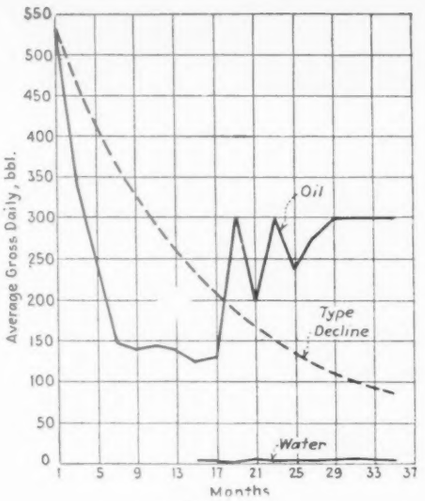


FIGURE 3

Seminole well influenced by slow water encroachment

in a well of this type the depletion of oil and gas originally in the sand has been at a rate in excess of the ability of the water to travel through the sand; that is, gas expansion is assumed to be the direct cause of the movement of oil into the well. Were this curve charactertistic of Seminole production, more particularly without the slow water encroachment and sand flooding, Seminole would long since have been history.

Figure 5 is a decline curve of a well in the Cromwell pool. It shows a well sustained rate of production, and is an example of the beneficial effect of a slow rate of water enchroachment. Although this well has made water in small amounts only, other wells surrounding it have produced considerably more, about one-half of the 80-acre lease having been on the edge of the pool originally. It is interesting to note that eight months ago the production of water in this well stopped, and that no water has been produced since. It is

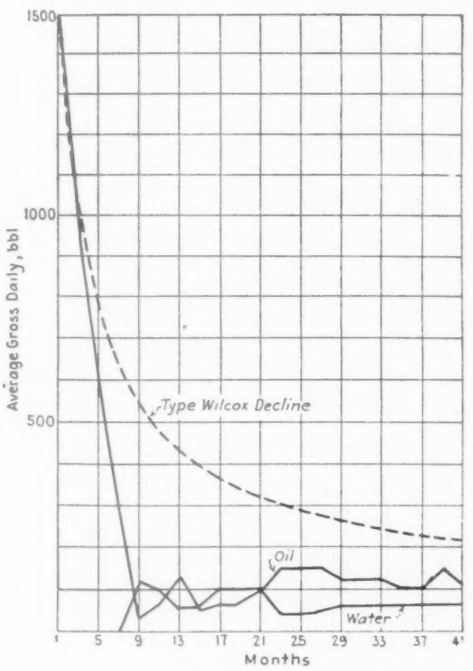


FIGURE 4

Seminole well slightly influenced by water encroachment

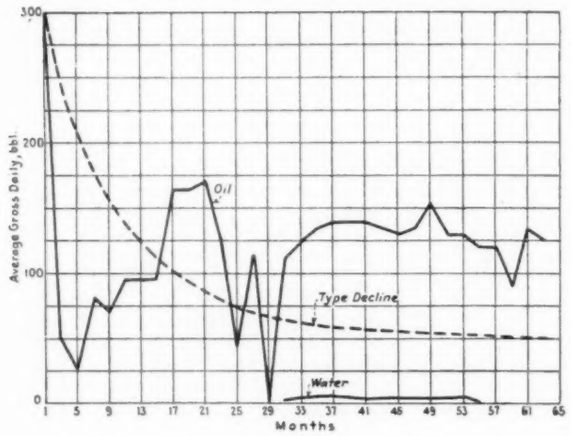


FIGURE 5

Cromwell well under influence of natural edge-water flooding

thought that this behavior is the result of a change made about a year ago from individual pumping units to pumping by central power, whereby all wells on the lease excepting this one, which is still produced with an individual unit, are produced at a slower rate. The approximate recovery from this well has been 218,000 barrels, whereas under the type decline recovery would have been about 170,000 barrels. The average recovery per acre for the lease is slightly over 8500 barrels, while this particular well has produced 21,800 barrels per acre.

The decline curves of two wells in the Burbank field, the recoveries from which are influenced by water-flooding, are shown in Figures 6 and 7. These two wells were completed at the same time, with initial productions of 840 and 1440 barrels. Individual well gages are not available for the period between completion and the seventh month's production. However, the well in Figure 6 serves as an example of the benefit of natural water-flooding. The recovery from this well from an average monthly production of 49 barrels daily in the seventh month to the seventy-fourth month does not equite equal the average recovery of wells higher on the structure, where gas is the predominating expelling force, but this well gives promise of exceeding the recovery of the higher wells in the near future. The comparative recoveries of this well and the average of the wells on top of the structure for the period indicated are approximately 34,400 and 36,400 barrels, respectively.

Figure 7 is an example of a much better recovery due to water-flooding. Recovery from this well for the period from the seventh to the seventy-third month, inclusive, has been about 80,700 barrels as compared to the average recovery of

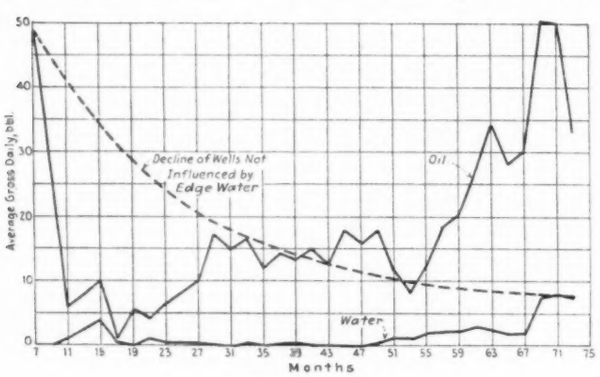


FIGURE 6

Burbank well; initial production 840 barrels; effect of natural water flood

approximately 36,400 barrels for wells not benefited by water-flooding. It may appear from Figure 7 that the average decline curve should have been tacked on at 69 barrels, which represents the largest average daily production for any month beginning with the seventh. As it happened, the wells shown in Figures 6 and 7 each had an average daily production of 49 barrels for the first month for which individual gages are available. Both wells at that time were under the influence of water drive or flooding, and, consequently, both should be compared to the average decline curve for wells on top of the structure beginning with the first month. If the average curve had been tacked on at 69 barrels the recoveries would have varied little from those given, and the principle illustrated would have remained unchanged. Actually, the recoveries from 69 barrels average production on would be approximately 71,500 barrels for the well and 42,000 under the average curve.

Methods by Which Water-Flooding Can Be Made More Effective

It is thought that the efficiency of natural edge-water flooding is a function of the rate of encroachment; but it does not follow that the rate most effective in one locality will

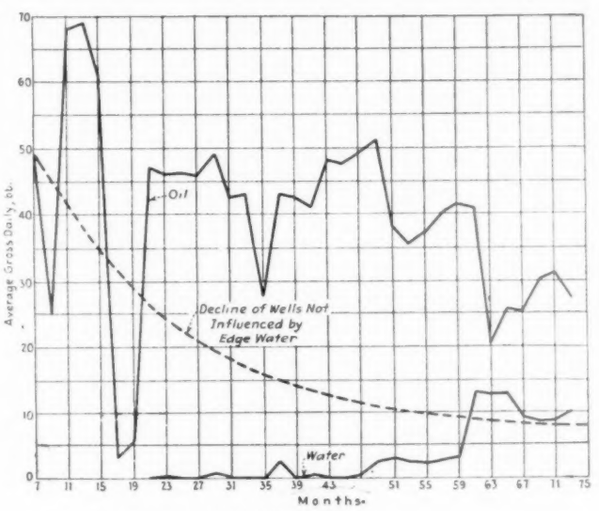


FIGURE 7

Burbank well; initial production, 1440 barrels; effect of natural water flood

return a high recovery in another. The most effective rate of natural water movement must depend upon sand conditions, nature of oil and water content, structure, water head, well spacing, production methods, rate, method and sequence of drilling, and possibly other factors. Of the factors enumerated, well spacing, production methods, and rate, method and sequence of drilling can be controlled. Earlier in this paper, it was shown that the recovery from parts of several oil fields in Oklahoma is influenced by natural water-flooding. It is probable that the energy in natural edge water is susceptible to efficient control, as is the energy of gas expansion. It is conceded that it will be more difficult to control than gas, but the possibilities of making the greatest use of natural water-flooding gives promise of large returns, particularly in such fields as Seminole, where the recovery of oil appears to be greatly influenced by water, even in the flush stage of production.

The most suitable method of drilling, spacing and producing wells so as to make most use of natural water-flooding can only be made effective under some plan whereby the pool or field is developed and operated as a unit. The recovery from

(*Continued on page 40*)

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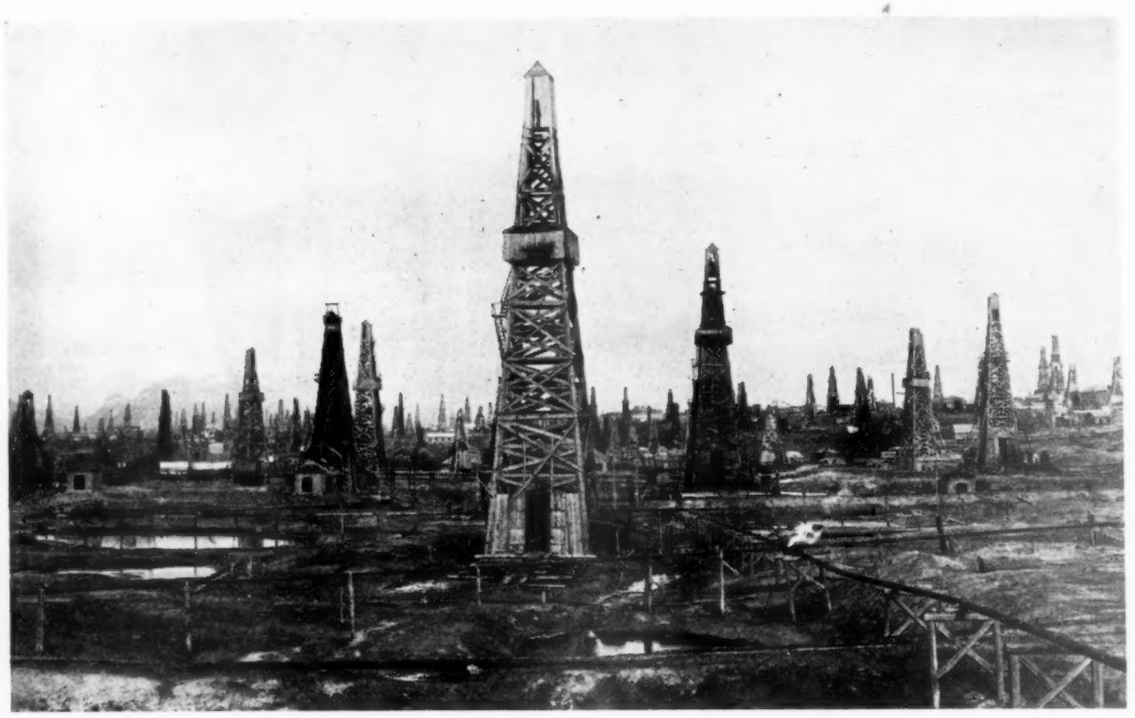

SURAKHANY OIL FIELD OF AZNEFT OIL TRUST, BAKU

WORLD PETROLEUM IN REVIEW

Cairo, Egypt.—Inauguration of the new petroleum basin at Suez by King Fuad on September 28 marked completion of a petroleum port which has cost $6,000,000. This port covers 130 acres of ground to a depth of 30 feet. There are six jetties, each 180 feet long, permitting the loading of six 10,000-ton ships simultaneously. A railway is now being built between Suez and Cairo to link up oil supplies from east of the Red Sea with the rest of the country, where the consumption of oil is annually increasing.

Bogota, Colombia.—President Olaya issued a statement on October 2 to the effect that Congress will have a new oil law ready for presentation within the next 10 days. This new law will permit extensive exploitation by foreign countries, according to the statement. American companies wishing to gain operating permits are the Standard Oil Company of New Jersey and Standard Oil Company of California, Gulf Production Company, The Texas Company, Indian Refining Company and Richfield Oil Company.

Lima, Peru.—A report of International Petroleum Company, Ltd., controlled by Standard Oil Company of New Jersey through Imperial Oil, Ltd., shows a slight increase in production in Colombia for the first seven months of this year which was more than offset by a decline of production in this country. Combined production of the company in the two countries during the period showed small net decline, the total being 17,835,061 barrels, compared

Effect of Edge Water on the Recovery of Oil

(*Continued from page 38*)

natural water-flooding is of sufficient magnitude to justify serious consideration of its employment to the fullest extent.

Conclusions

1. The recovery of oil from many fields is influenced by natural water-flooding, and in many fields, or parts of fields, this natural flooding has been one of the main factors contributing to efficient recovery.

2. The rate of water movement greatly influences the effectiveness of natural water-flooding.

3. The factors largely governing the rate of movement are: Hydrostatic head of the water, permeability of the sand body and rate of removal of oil and gas from the sand.

4. The most effective rate of movement must be governed by sand conditions, nature of oil and water content, structure, water head, well spacing, production methods, and rate, method and sequence of drilling.

5. At least three factors governing the effectiveness of natural water-flooding can be controlled. They are: well spacing, production methods, and rate, method and sequence of drilling.

6. The rate of edge-water encroachment can be controlled, to some extent at least, by proper well spacing, producing methods, and rate, method and sequence of well drilling, if consideration is given these factors in the development and operation as a unit of a structure bearing oil and gas.

7. The effectiveness of recovery by natural water-flooding is of sufficient consequence to become a strong argument in favor of making an operating unit of the whole pool or structure rather than of the individually owned and operated lease.

with 17,889,161 barrels produced for the first seven months of 1929. Curtailment of output in this country, which was initiated in July, is being continued. In August the daily average production for the company was 24,718 barrels. The number of completions of the company for the period declined from 103 for the same period in 1929 to 73 but the average initial daily production increased to 406 barrels from 166 barrels. This company is producing almost twice as much oil in Colombia as in this country, production for the period being 11,845,348 barrels for Colombia and 5,989,713 barrels for Peru. While practically all the oil in Colombia was shipped, less than half the Peruvian production was taken out of the field.

Berlin, Germany.—A new strike of oil at Hademstorf on the banks of the Aller, some distance down the river from the old Wietze oil field, affirms the beliefs of operators that perseverance with scientific and systematic deep drilling will open up new possibilities of petroleum production in Germany.

The circumstances in which the new find was made, as the result of a deep test may best be visualized from the following account of the history of the field:

The Hademstorf district was considered promising even before the war. Several holes drilled to a depth of 1200 feet into the sandy clays of the tertiary formation had no prospects of success, as the oil bearing strata lie at much greater depths. In 1922 a Bremen merchant commenced operations independently, ultimately founding a company which drilled an unsuccessful test at Hademstorf. A second test put down by the company finally proved the presence of oil. So far, four oil bearing sandstone complexes have been encountered.

A well being drilled by Raky for Nordeutsche Mineralol A. G. has struck oil under great pressure at Oberg in Hanover. Production promises to be very prolific, and it has been necessary to shut the well in at present.

Vienna, Austria.—Failure of Wiener Erdol A. G.'s deep test at Maria-Lanzendorf in the Vienna Basin had discouraged all hopes for petroleum production in Austria but the news of the strike of oil at Windisch-Baumgarten, in the vicinity of the town of Zistersdorf has aroused interest once more and possibilities are that there will be more enthusiastic exploration for oil in the future. The Raky-Danubia Company of this city had to abandon one hole at 650 feet earlier in the year but it started a second hole only about 30 feet from the site of the first test and succeeded in finding oil at 2370 feet. The borehole and the roads leading to it have been railed off, to prevent the possibility of accidents or the undue leakage of information.

Bucharest, Roumania.—A review of the natural gas situation in this country shows that there is only a very small amount being utilized. This is due to the lack of sufficient pipe lines. Gas has been found both with and without association of oil. Purely gas sources are found in the southern and eastern foothills of the Carpathians in the districts of Valeca, Dambovitza, Prahova and Buzau. Numerous gas emanations at different points in this region leave no doubt as to the wide range of the gas occurrences, which extend over a total area of 12,000 kilometers. The natural gas occurs very largely in the salt zones and domes. Of 36 known salt domes, only six have been exploited so far.

Tallin, Esthonia.—Construction has started here on a new oil shale plant that will have a daily capacity of 3200 barrels. The company responsible for the erection of the plant has obtained a contract from the government for the supply of shale oil to the state railways, which plan a gradual replacement of shale for coal as fuel.

Maracaibo, Venezuela.—The arrival of 500 tons of four-inch pipe line pipe for Creole Petroleum Corporation is the initial step in a program which will result in the eventual inclusion of the Dabajuro field in the growing list of Venezuela exporters from the Maracaibo Lake Basin. The pipe will be used in the construction of a pipe line for transporting crude petroleum production from the Las Palmas wells of the Creole to Hombre Pintado. The line will make connection with the line which has been in operation for several years between Pintado and the British controlled fields at El Mene.

Paris.—The Iraq oil concession issue will be discussed in the next few weeks according to recent reports. The issue involves the question of whether the present concessionaires, which consist of the principle oil groups of Great Britain, the United States, France, The Royal Dutch of Holland, the Gulbenkian Armenian group, and a new international oil group, believed to be headed by Mussolini, did not agree to a time cause with King Fiesal of Iraq committing them to develop the field before November 1, 1930, under penalty of losing their concessions to new and more active groups.

Maracaibo, Venezuela.—Extensive operations that have been going in this country are seen as a result of the fact that there are 120 oil companies registered at present as either owning holdings or operating. This has made much serious competition and has caused the great amount of over-production during the past several months.

Well No. 1 Dacia-Romana, Piscuri, Romania. x A. A. Altman, xx E. J. Rutherford, xxx D. Bucuroiu, and the drillers of the well. (*See "Letters," page 93*).

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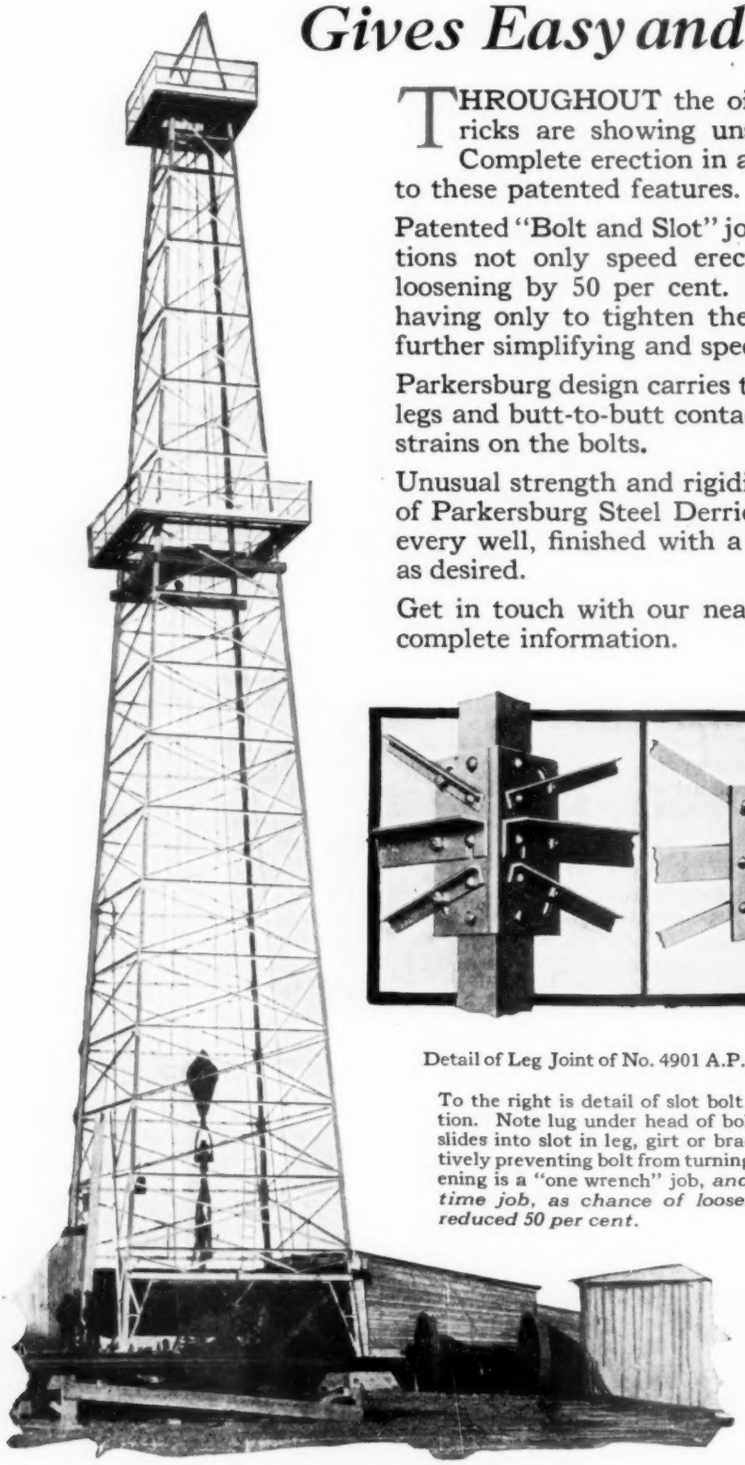


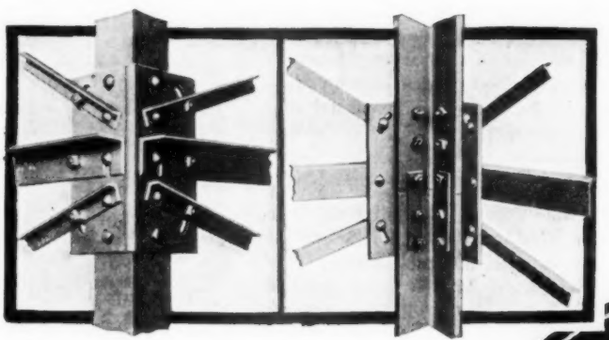
THROUGHOUT the oil country Parkersburg Steel Derricks are showing unsurpassed erection speed records. Complete erection in a day is a common occurrence, due to these patented features.

Patented "Bolt and Slot" joints for girt, brace and leg connections not only speed erection but lessen liability of bolts loosening by 50 per cent. Rig builders' time is reduced by having only to tighten the nuts. Legs are interchangeable, further simplifying and speeding erection.

Parkersburg design carries the load *straight* down the derrick legs and butt-to-butt contact of leg joints eliminates all shear strains on the bolts.

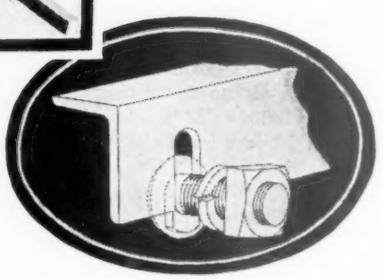
Unusual strength and rigidity are assured by the construction of Parkersburg Steel Derricks. There is a size and type for every well, finished with a coat of aluminum, or galvanized, as desired.

Get in touch with our nearest field representative today for complete information.



Detail of assembly at left shows outside and inside view of a joint, with girts and braces in position. Note how slots in leg sections and joint plates engage bolts; also gusset plates for increased bearing surface and how butt-to-butt contact is made.

Detail of Leg Joint of No. 4901 A.P.I. Derrick



To the right is detail of slot bolt connection. Note lug under head of bolt which slides into slot in leg, girt or brace, positively preventing bolt from turning. Tightening is a "one wrench" job, *and a one-time job, as chance of loosening is reduced 50 per cent.*

THE PARKERSBURG RIG AND REEL CO. PARKERSBURG WEST VIRGINIA QUALITY SERVICE MADE IN U.S.A. TRADE MARK REGISTERED

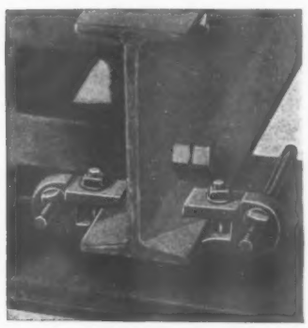
THE PARKERSBURG RIG AND REEL COMPANY

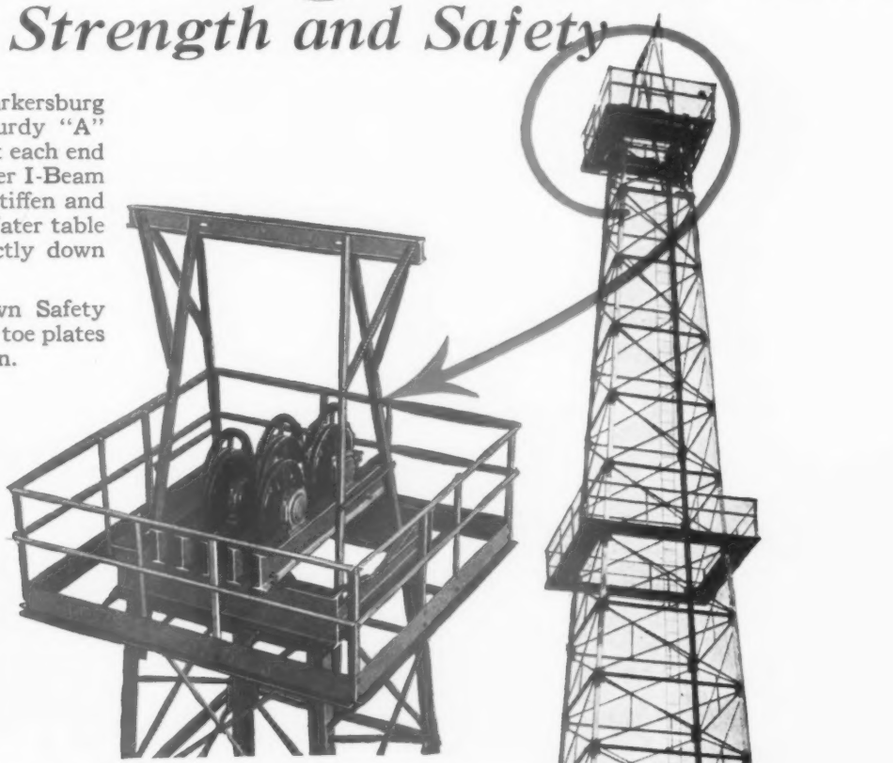
Parkersburg Derricks

with Added Strength and Safety

Improved Gin Poles of Parkersburg A.P.I. Derricks consist of sturdy "A" Frame Legs of 4-inch angles at each end which rigidly support the center I-Beam Girt. Outside double braces stiffen and add resistance to side pull. Water table beams transfer the load directly down the legs.

The 2-foot walkway of Crown Safety Platform has close-fitting steel toe plates which assure safety of workmen.





Parkersburg clamps illustrated above bind the Crown Block securely on the water table in exact alignment and eliminate drilling holes in the beams. These clamps are adaptable to any type Block. They provide easy adjustment, but when tightened they hold.

Parkersburg Products

Steel Derricks and Crown Blocks

Rig Irons

Portable Drilling Machines (Wood and Combination-Steel)

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173 A

The Control of California Oil Curtailment

(*Continued from page* 24)

ferent formulae which may be made as complicated as desired, but which are here given in their simplest form:

$$c = \frac{b}{f} \qquad (f = \frac{a}{b} = \frac{1}{r})$$

$$c = \frac{b^2}{a}$$

$$(r = \frac{b}{a} = \frac{1}{f})$$

$$c = b.r^n$$

Where c=required potential or the estimated daily average for next period.
b=average daily production of present period.
a=average daily production of previous period.
f=decremental factor.

In this instance successive equal intervals of average production are assumed but intermittent periods of unequal length are easily used by making appropriate modifications of the above formula. This formula can be developed into a formula for calculating the recoverable oil remaining as of any given time.

$$\text{Future production} = \frac{d(a-z)}{1-r}$$

Where d = number of days in periods used
z = minimum commercial daily production
a and r = above.

Thus a well showing an average production of 150 barrels daily during January and a normal average of 125 barrels daily for June might be expected to average 120.5 barrels daily during July according to the brief calculation:

$$\text{July Potential} = \frac{125}{\sqrt[5]{\frac{150}{125}}} = \frac{125}{\sqrt[5]{1.2}} = \frac{125}{1.037} = 120.5 \text{B/D}$$

Assuming that 10 barrels daily is the minimum commercial production of the well the recoverable oil remaining as of June first would be:

$$\frac{30(125-10)}{(1-\frac{1}{1.037})} = \frac{30(125-10)}{(1-.96423)} = \frac{3450}{.03577} = 96{,}450 \text{ barrels.}$$

The expected life of the well after June first would be 70 months or nearly six years. The total life and total ultimate production expected from the well may be obtained by adding past life and production to estimated future life and production.

In applying the procedure here outlined it must be remembered that the formulae given apply only to settled production which may be considered as coming from wells showing an average monthly decline of less than five per cent. In practice it has been found that the ultimate production as estimated was consistently a trifle lower than the ultimate obtained although theoretical considerations indicate that the actual production might slightly exceed the estimates.

Principles Governing Potentials

As a result of analyzing the production graphs of hundreds of wells under every conceivable kind of control and with every degree of curtailment several principles governing the establishment of well potentials were developed. The more important of these principles may be mentioned.

1. The decline of a flowing well free from serious interference is a function of the differential pressure (i. e. difference between effective formation pressure and the back pressure) and is subject to variation within wide limits by mechanical control.

2. The potential production of a well at any time and under uniform physical conditions depends upon its total past production as compared with its ultimate production rather than upon the rate of past production.

The meaning of the first principle is that within wide limits the producer may govern the rate of decline of his well by mechanical manipulation. The second principle says that the potential production of a well which has produced a certain amount of oil under curtailed conditions in a given time is the same as if the well had produced the same amount of oil under normal conditions and in a much shorter time. This may be considered as a corollary to the law of equal expectations.

An additional principle which appears to be true but is not yet proved, is that:

3. The ultimate production of a well having little or no competition may be considerably increased by limiting the well to a low rate of decline during its flowing life.

This principle is clearly indicated at present but it is too soon to say when edgewater encroachment will terminate the production from several wells under observation.

In practice it was found that the second principle could be applied only to isolated wells because well interference in a closely drilled field is so serious that any well may easily lose a large proportion of its original ultimate production to competing wells. It was noted that in a great many cases the potential production of wells in competition declined at almost exactly the same rate at which their actual curtailed production declined. Thus a well with a potential of 1000 barrels daily and with a monthly decline of 10 per cent under curtailment, would be given the same percentage decline in potential. This was found to be true in so many cases that the principle was applied to all wells except those obviously irregular.

The method of estimating and the assignment of potentials to wells under widely different conditions is illustrated in the accompanying graphs. The variable performance of the wells under curtailment is also shown. One feature worthy of note is that the usual method of curtailing gas lift wells is to produce them at capacity until their total monthly allowable production is obtained and then shut them in for the balance of the month. This is because the daily allowable is usually far less than the minimum amount which the well will produce by gas lift. Frequently also a potential is established on gas lift, but the allowable production based on such a potential may be obtained by natural flow or by pumping.

The gas-oil ratio of a flowing well has a considerable bearing on the curtailment problem of that well. One of the results of the curtailment program has been the concerted effort of many operators to reduce the gas-oil ratios of curtailed wells. The common tendency of flowing wells to increase their gas-oil ratio if left undisturbed for some time is well known. It is difficult to avoid this increase in the gas-oil ratio except by careful and frequent adjustment of mechanical conditions and by severe curtailment during the early life of the well.

It is apparent that this increase in the gas-oil ratio is due to the removal of fluid from the well faster than it can flow through the sand to the well. This results in an area

Timken Bearings Create Large Power Savings *in* Baby Lufkin Pumping Units

The Baby Lufkin Pumping Unit, manufactured by The Lufkin Foundry & Machine Company, Lufkin, Texas, is one of the latest additions to the extensive range of Timken Bearing Equipped machinery now available to oil operators.

It was designed especially for the pumping of small and medium capacity wells, and allows wells of from 5 to 100 barrel capacity to be profitably exploited—largely through extremely low power demands resulting from the use of Timken Bearings.

As a matter of fact through the wholesale elimination of friction thus attained, a 3 H.P. motor provides ample power where otherwise, according to the manufacturers, a 10 H.P. motor would be required. A definite power saving of 70% is thus indicated to say nothing of the reduction in lubrication costs, which is considerable.

The advantages of the exclusive combination of Timken tapered construction, Timken positively aligned rolls and Timken-made steel make their presence felt in other directions, too, for radial, thrust and combined loads are carried and conquered, continuous attention free performance is assured, maintenance costs are slashed to ribbons and the life of the entire unit greatly prolonged. The Timken Roller Bearing Company, Canton, Ohio.

TIMKEN *Tapered Roller* **BEARINGS**

of local impoverishment surrounding the well with the pressure gradient increasing rapidly in all directions away from the well. The farther the gas has to travel to enter a well the less oil comes with it. This is because of the higher mobility of gas, together with its tendency toward by-passing and slippage in the formation.

Obviously, the solution of this problem is to maintain a low pressure gradient in the formation and thereby hold the drainage area in near equilibrium. In theory, oil should be removed from fields under hydraulic control only as fast as edgewater can encroach to take its place. Unfortunately, we know so little about the source, effect and rate of movement of edgewater that we cannot base our production upon it. Particularly should we know more about the components of edgewater pressure. How much of the pressure is due to hydro-static head; how much to rock pressure and how much to gas accumulation. Its rate of movement depends upon the effective pressure and upon formation friction and also upon its source.

Unable to use edgewater encroachment as an index for our rate of production, we are forced to cast about in search of some arbitrary standard to guide us. In this search we may consider that it is our purpose to derive the maximum practicable amount of work from all gas originally present in the reservoir. Conditions vary so much between fields and between wells in a field that it is difficult to make a statement as to what constitutes efficient gas utilization. However, a few generalizations may be made as follows:

1. The gas-oil ratio of an individual well should not exceed the average ratio of the zone or field. Wells exceeding this average should be adjusted or shut in completely if not subject to improvement.

2. Production should be obtained by the most efficient mechanical means. Thus a well may be flowed through the casing at one stage of its life and through tubing at another stage, or control may be entirely by tubing depth, tapered tubing or bottom hole beans. Except for curtailment purposes there should be no back pressure on properly tapered tubing or on tubing having the correct bottom bean. High pressure gas from wells in one zone has been taken directly from the trap to flow wells in zones requiring gas lift.

3. The decline curve of a well should not be allowed to become of the power function or hyperbolic type for such a curve in a field under hydraulic control indicates that gas is doing more work than is necessary.

If hydraulic control is lacking or negligible, the decline curve should not be less than isothermal in type, which is a power function curve of the formula $k = x^n y$ in which the product of the production and the time element is always constant. The value of n in the formula $x^n y = k$ should be kept as high as possible. However, in all possible cases, a curve showing a constant percentage of decline with a low rate is preferable to curves which indicate inefficient utilization of gas.

It is not always easy to recognize the type of natural curve represented by a well's decline, so the following directions may be found useful:

Given: The average daily production of three successive equal intervals of flow under normal conditions.

Required: To determine the type of curve represented by the well's decline.

Procedure: Substitute known values for a and c in the following equations and solve for b.

1. $b = \frac{a+c}{2} =$ (Arithmetic Decline / Constant Decrement Decline.)

2. $b = \sqrt{ac} =$ (Exponential Decline / Geometric Decline / Constant Rate Decline)

3. $b = \frac{2ac}{a+c} =$ (Harmonic Decline / Isothermal Decline)

4. $b = \frac{a+c}{(a+c)-\frac{(2ac)}{a+c}} =$ (Basic Decline / Fractional Power Decline.)

Result: The decline curve of the well may be considered as being of the type named with the equation giving a calculated value for b most nearly equal to the actual value.

Ninety per cent of all well decline curves fall between types 2 and 3 and may be considered either as power function curves with high "n" values or as double exponent curves. It is between types 2 and 3, and between types 3 and 4 that many other empirical equations may be developed. For the greatest flowing production as well as for the largest commercial ultimate the decline curve of a well should be held closely to the Geometric Decline type of curve.

It is interesting to note that those fields where conditions most nearly approach those of unit operation are the fields that have had the fewest curtailments difficulties and are the least affected by curtailment. It follows, of course, that the periodic need of balancing production against demand is another argument in favor of unit operation which provides the easiest and most efficient method of bringing about such a balance.

Future of Curtailment

The oil industry has now demonstrated that although it is impossible to increase demand as rapidly as the supply is often increased, it is possible to cooperatively adjust the supply to the demand by means of proration. Other industries are even now following the same course and it seems probable that the time will soon come when huge stocks of surplus commodities will be unknown because they will not be created in excess of normal needs.

The prosperity of the 80,000 employes of and the 500,000 investors in the California oil industry is so dependent upon stable conditions of production and price that it now seems probable that oil curtailment in some form will continue until storage oil is reduced by half and until the normal production of the state closely approximates current demand.

Aside from its economic value, curtailment has given us a better knowledge of some of the factors affecting the production of oil and the management of oil fields. Some of these have been briefly touched upon in this paper, others must await further investigation. Unfortunately, as is the case with many other advances, the full effect of more efficient production methods can be realized only under ideal conditions of development and such ideal conditions are entirely too rare. It seems possible, however, that the growing spirit of co-operation among oil producers as manifested by the success of voluntary proration may eventually lead to the co-operative development and production of oil fields on such an efficient basis that restricted production will become the rule rather than a necessity.

Acknowledgment is hereby made of the valuable suggestions and assistance received from Joseph Jensen, D. R. Roberts, F. A. Graser and M. R. Peterson in the preparation of this paper.

The fact that The OIL WEEKLY has over 20 per cent* more oil producer subscribers than any other oil journal is evidence of editorial leadership. An editorial staff that is aggressive, a management that is progressive, and a publishing plan that is sound, have contributed to a constantly increasing number of *exclusive OIL WEEKLY* readers.

* *Actual figures now 27.5% over nearest competitor.*

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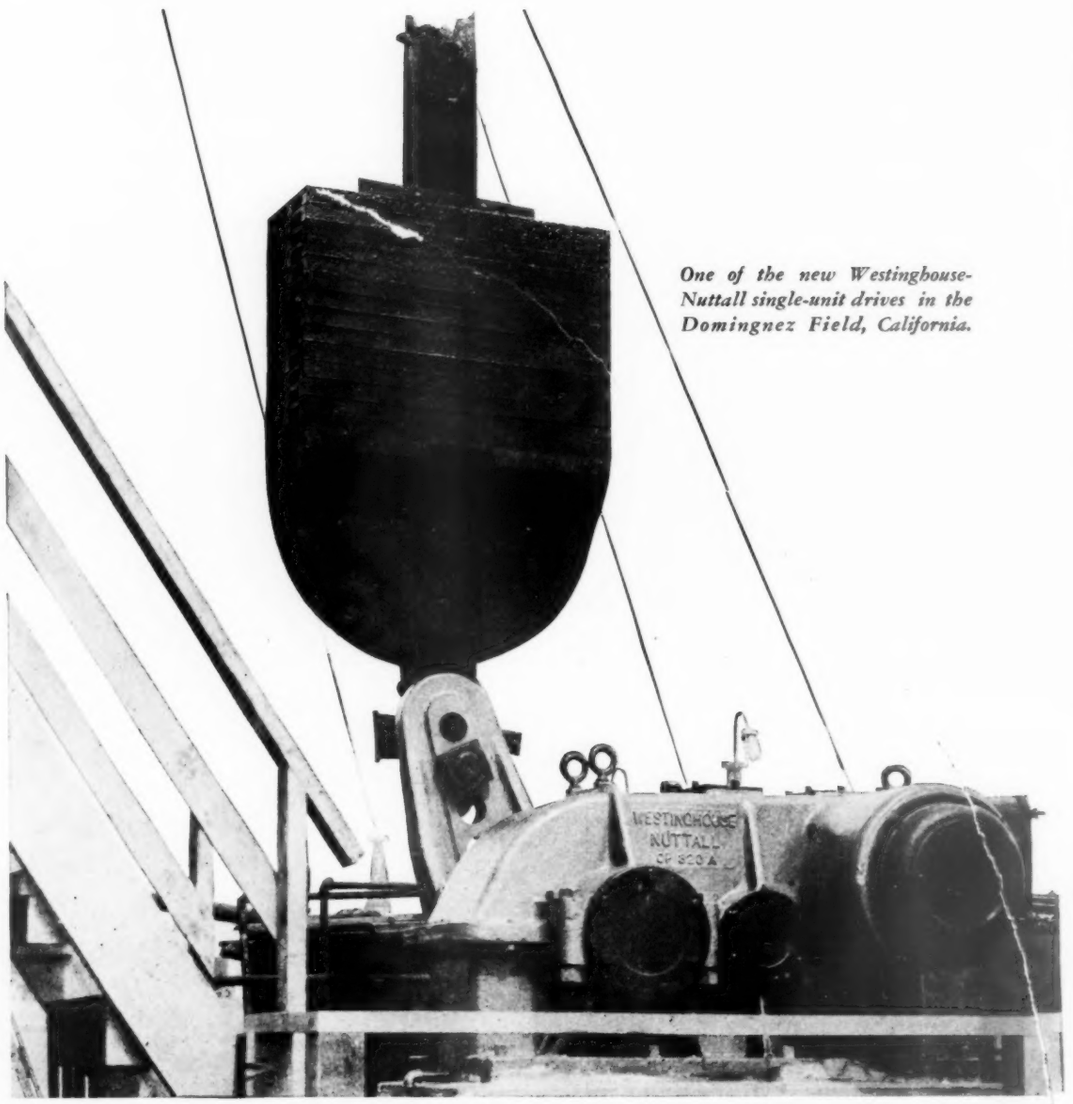
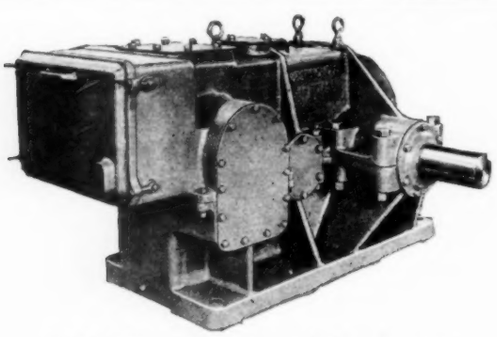
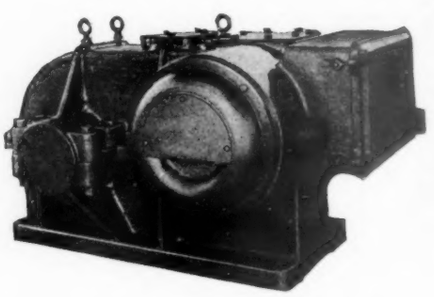


One of the new Westinghouse-Nuttall single-unit drives in the Domingnez Field, California.



Projected construction at crank shaft gives ample clearance for rotating type counter-balances.



Motor frame and control are part of the top section of the reduction gear.

a Complete Drive for Electric Pumping in a SINGLE UNIT

FOR pumping wells electrically, the newest Westinghouse-Nuttall geared drive provides complete equipment—motor, control, and reduction gear—in one self-contained, compact unit.

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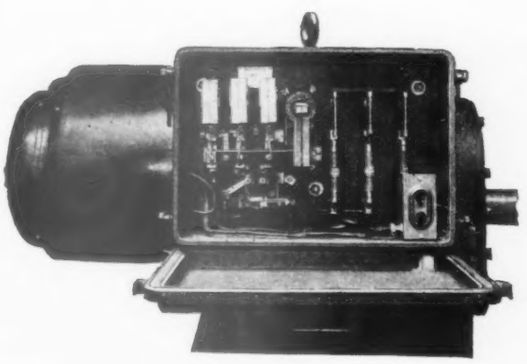
Elimination of motor bearings and couplings, the use of anti-friction bearings, total absence of slippage, and the small number of moving parts are distinct features of this drive which assure highly efficient operation with practically no attention except occasional lubrication. Simplicity and sturdiness of the entire unit are added assurance of long, dependable service.

This drive is built in three sizes ranging in capacity from 5 to 40 hp. In each size, a wide variation in pumping speeds is easily obtained by means of small, readily accessible change gears —an exclusive Westinghouse-Nuttall feature— and also by using motors of different speeds.

For complete details of this improved drive, write the nearest Oil Well Supply Company or Westinghouse Office for a copy of DMF-5301.



Complete control, including disconnect switch, is mounted in this weather-proof compartment.

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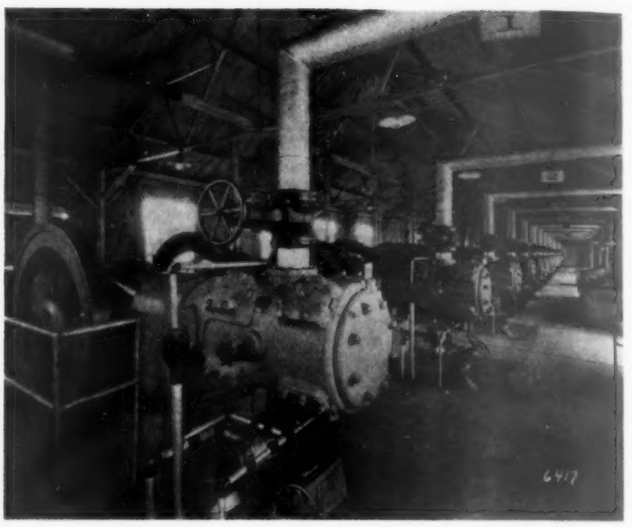

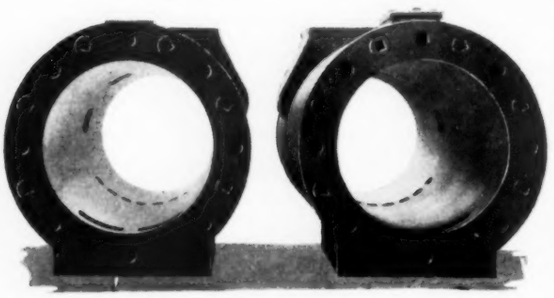

HONED CYLINDER UNHONED CYLINDER

The above un-retouched photographs show the mirror-like finish imparted to all cylinders by the CLARK honing process, as compared with cylinders finished by ordinary methods. Honing increases the efficiency and lengthens the life of the cylinders.

Buyers of CLARK Engines profit by every improvement made possible by progress in engineering practice. They also find new CLARK Engines developed whenever necessary to meet the changing requirements of the oil industry.

Many noteworthy improvements in design and construction have been pioneered by CLARK. The most recent of these is the use of the very latest type of equipment for honing all power and compressor cylinders.

CLARK developed the first perfected and efficient 2-cycle gas engine, the first successful double-acting engine, and the first pumping engine unit with compressor cylinder attachable without change in engine bed plate. And now—to meet definite needs in the industry—CLARK is introducing three new machines. These are: the CLARK 8-cylinder Vertical Gas or Gasoline Engine; the CLARK 60 H. P. Direct Connected Compressor, and the CLARK 2-cylinder Vertical Pumping Engine.

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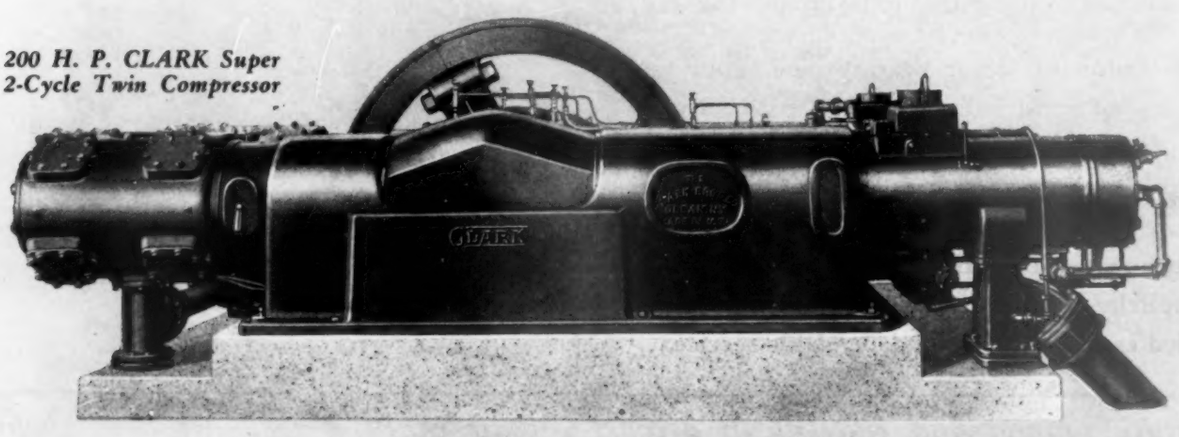

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Oklahoma Proration Meets Opposition at Hearing

OKLAHOMA CITY.—Proration of Oklahoma crude oil production met its most stubborn opposition when the Oklahoma Corporation Commission opened its hearing October 8 on the petition, through which the proration committee of Mid-Continent Oil & Gas Association would have the state body set up a schedule for the final quarter of the year. The hearing continued into this week, with indications that it will not be finished before the middle of the week.

Developments have been a general attack on the constitutionality of proration orders, unfairness of the orders and a charge that the real object of proration is the fixing of prices. The opposition has been headed by C. C. Julian Oil & Royalties Company. Champlin Refining Company of Enid has joined the efforts to defeat the coming order. Last Saturday, October 11, H. F. Wilcox Oil & Gas Company turned its support to those who are seeking to defeat the new order.

Every indication is that the question of proration will go before some federal court in case the corporation commission issues an order in keeping with the petition. The old order was extended until October 10 to give time for the present hearing. When it became evident that the hearing would extend beyond this date, the corporation commission granted a further extension until October 20.

The first charge of John Head, attorney for the Julian company, is that the petition is for the sole purpose of fixing prices and is in violation of both the state and federal constitutions, since it would take property without due process of law. Another basis of opposition was that the proration order interferes with interstate commerce, since pipe lines serving oil fields of the state deliver oil outside of the state. A charge also was made that the order serves to permit the larger companies to restrict production in domestic fields, while they import oil from foreign countries. A contention in connection with imports was that with the halting of foreign oil, there would be a shortage in the United States.

Collins a Witness

Ray M. Collins, umpire of the proration committee, was the first witness. He gave his impression of the conditions within the oil producing fields of Oklahoma and said the Oklahoma City field alone could supply the needs for oil in the United States. His presence on the stand was the occasion for several legal tilts between attorneys of the protesting company and Frank Burford, attorney for the proration committee. The question of price fixing came up through questions to Collins and the commission finally ruled that the matter of price was not under consideration.

Victor H. Smith, president of Crude Oil Transportation Company as well as other concerns, testified to the effect that crude prices seemed certain to fall regardless of proration but that a breaking down of proration would bring still worse conditions. He said it was possible to buy oil in Texas below posted prices and that some selling below the posted market was being done in Oklahoma.

George A. Dye, vice-president of H. F. Wilcox Oil & Gas Company said his company had been in favor of proration in the past but had sided with the opposition to the order, since it could not operate its refineries at a profit with crude oil at its present posted figure. He favored the shutting in of the Oklahoma City field for six months, since it is the chief offender in the present demoralized situation in Oklahoma.

Subpoenas have been issued for more than 100 witnesses. Should the greater number of these be called to testify, the hearing will continue throughout this week. Among those to be heard are E. B. Reeser, president of the American Petroleum Institute; C. C. Herndon, chairman of the proration committee of Mid-Continent Oil & Gas Association and officials of Prairie Oil & Gas Company, Carter Oil Company and Sinclair Oil & Gas Company.

Representatives of several railroads, which serve the Oklahoma City pool have been called.

Oklahoma Supreme Court Upholds Conservation Law

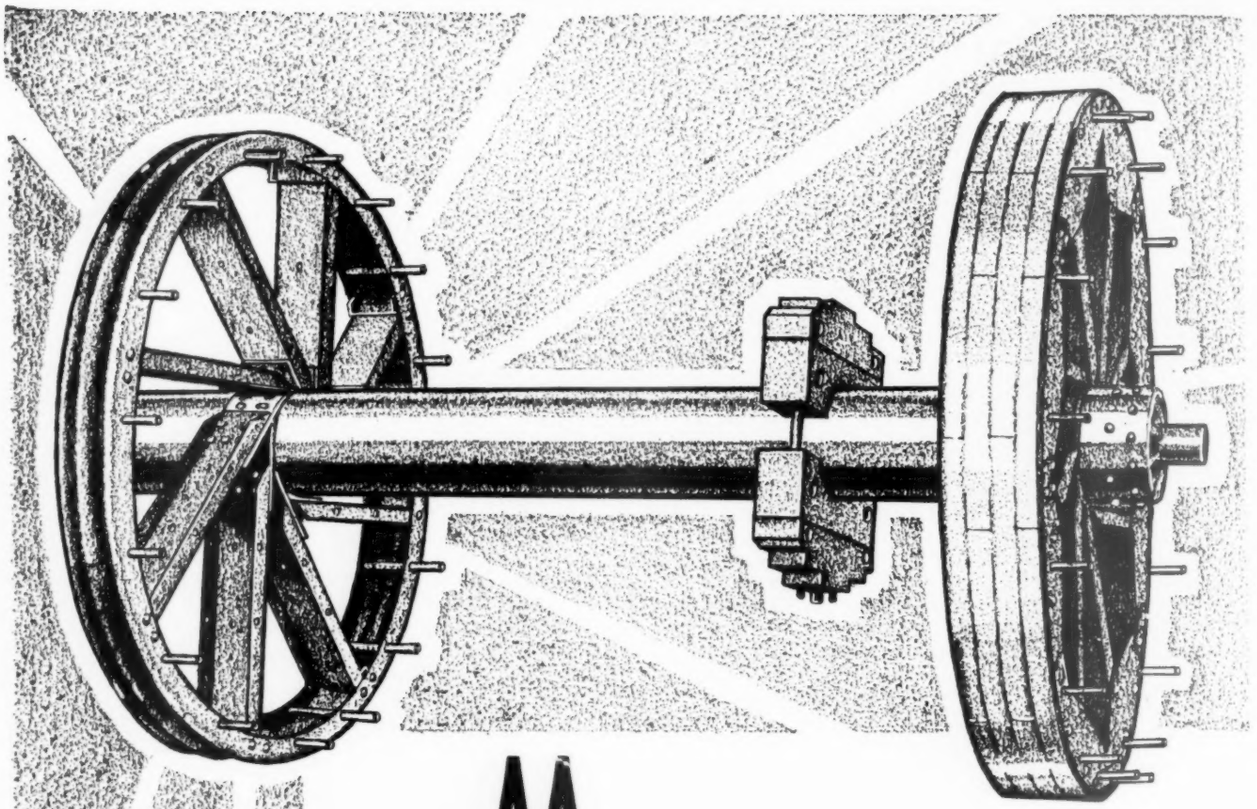
OKLAHOMA CITY.—The Oklahoma Supreme Court today upheld the constitutionality of the state oil conservation laws and the jurisdiction of the corporation commission to administer them in the form of proration. The decision was issued in the writ of prohibition suit brought by C. C. Julian Oil and Royalties Company seeking to restrain the corporation commission from enforcing its proration orders in the Oklahoma City field.

The court declined to drop the case recently after a similar decision had been reached by the federal court of three judges and Attorney General J. Berry King, who headed the defense of the conservation laws, had protested against the dismissal of the case. Attempt to withdraw the case was made by John Head, attorney for Julian. The corporation commission has been appointed by the federal court as the body in which relief should first be sought before being appealed to the higher courts. This commission has had to bear the brunt of the attack being brought on proration by C. C. Julian in conjunction with Champlin Refining Company.

In upholding the power of the commission the court said:

"In this connection it can not be disputed production of petroleum and its various products is one of the major industries of this state and one in which many of its citizens are vitally concerned. The almost universal use of oil, gasoline and other petroleum products, together with the fact that a major portion of the revenues to support our educational and eleemosynary institutions and other departments of state government is derived from taxes levied upon this industry, makes the conservation of this great natural resource a matter of grave concern to the state and every citizen.

"Notwithstanding the magnitude and importance of the oil industry, it is one of the natural resources which is peculiarly susceptible to waste and dissipation, and when it once escapes can never be recovered."



Moore BULL WHEEL

AS GOOD AS THE CHAMPION DERRICK

The ruggedness and long life of the Moore Steel Bull Wheel are the results of extra strength supplied at every point of wear and strain. The heavy shaft is heated and shrunk over the gudgeons. The latter are securely riveted in place. The spokes are tangent to the shaft and exert a direct push on it. To give maximum pulling power, the tug rim is of one piece rolled steel with a double V groove. The Moore Bull Wheel conforms to A. P. I. dimensional standards and is field proven equipment.

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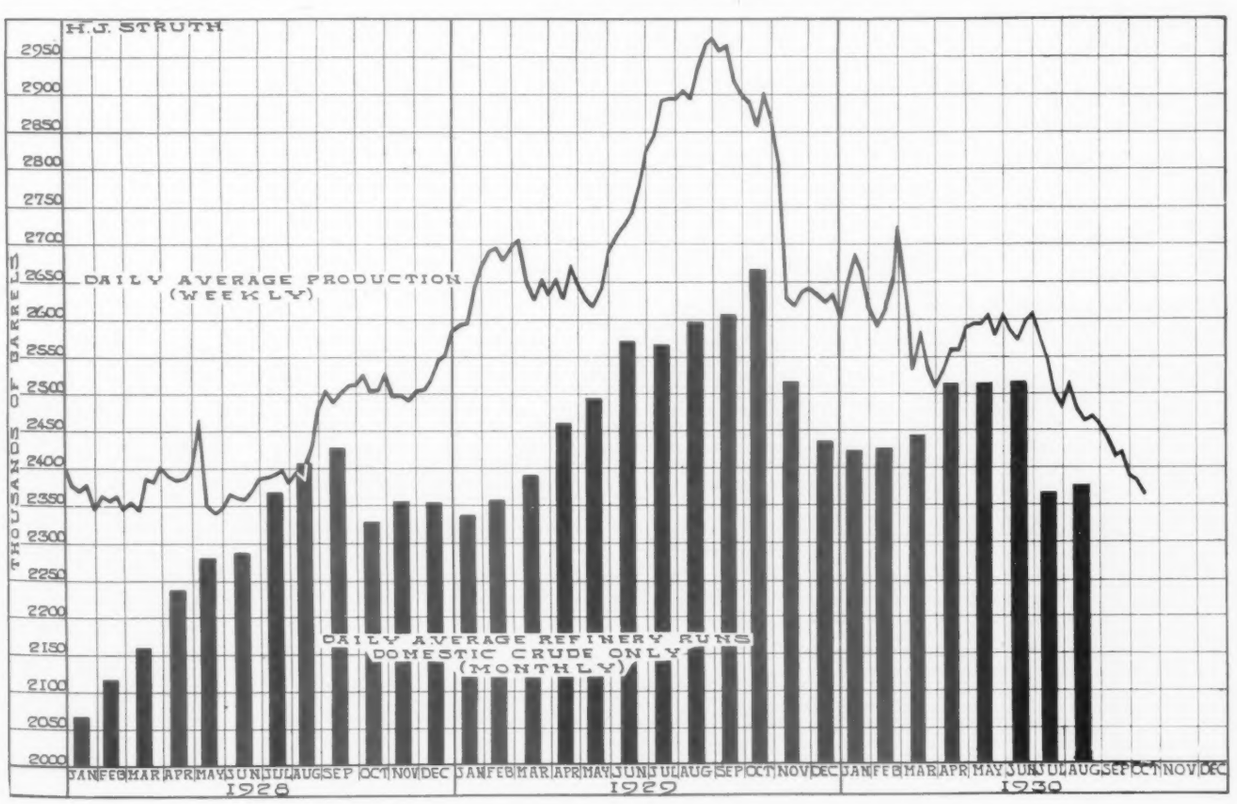
H. J. STRUTH, *Staff Economist, Houston, Texas*

Stocks Will Shrink With Present Production and Still Runs

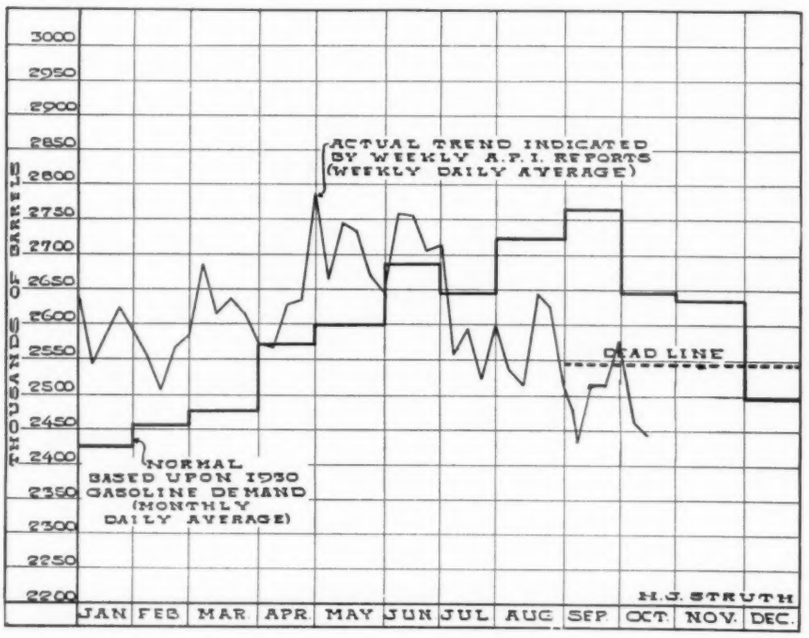
WITH crude production at a point only 5000 barrels above the national normal quota and still runs curtailed more than 100,000 barrels a day under the average reported by the Bureau of Mines for the month of August, there is renewed hope for the immediate future of the industry. Having practically reached the desired production level of crude and having reduced refinery operations to a marked degree in the past two weeks, there is now sufficient reason to believe that surplus stocks of both crude and refined oils will begin to show signs of rapid shrinkage. At least that is what will happen if producers and refiners determine to hold production and still runs at present levels throughout the balance of this year. There is not much time left to wipe out the excess supplies of crude and products by the end of this year, but it is certain that continued control, of the type manifested by crude production and refinery figures during the past few weeks, cannot fail to substantially reduce inventories between now and January 1.

Crude oil production was again reduced last week to the extent of 20,150 barrels daily, bringing the national total down to 2,366,800 barrels, or only 4976 barrels above the normal quota prescribed for the last quarter of this year. At the same time, runs of crude to stills at refineries were further reduced to an estimated national total daily average of 2,445,000 barrels. This represents a reduction in the daily average reported by the Bureau of Mines for the month of August of 113,000

DOMESTIC PRODUCTION AND REFINERY RUNS



RUNS OF CRUDE TO OIL STILLS



barrels and a reduction from the total reported only two weeks ago of 131,000 barrels daily. This indicates that refiners have determined to put their house in order by concerted curtailment action. Had such action been taken earlier in the year, it is obvious that present market conditions would not have prevailed and the financial statements of the oil companies would have made a favorable showing compared with last year. As it is, low prices have proven a serious detriment to all branches of the industry that cannot fail to be reflected in unfavorable earnings statements at the close of this year. It is significant, however, that the refining branch of the industry has at last determined to substitute talk with action and it is certain that continued action of this nature will quickly restore the degree of equilibrium that is so necessary to the industry's prosperity.

Situation Favorable

Perusal of the accompanying charts showing daily average crude production and refining still runs cannot fail to leave a most favorable impression. What the sharp downward trends mean to the industry is not difficult to realize. The course prescribed by these curves, if continued or even maintained at present levels, cannot fail to be reflected in a better market structure next year. Those who have become impatient over the inability of the industry at large to benefit from the sacrifices made during past months, can now renew their hopes for an early readjustment of the economic structure of the crude and refined oil markets. Once stocks have been reduced to the desired level and prices begin to reflect such improvement, it is believed that a majority in the industry will realize the importance of production control as insurance against depression such as still pervades the industry. Signs of the times point more clearly to the fact that many in the industry have learned to figure in terms of dollars and cents instead of barrels and gallons.

Declines General

Oklahoma, Gulf Coast, Arkansas, Eastern States and Rocky Mountain states reported declines in production last week; Kansas showed no change; Texas and North Louisiana reported slight increases, while California showed a gain of 4000 barrels daily. Oklahoma produced 900 barrels less than the allowable figure of 550,000 barrels daily; Texas production was 4000 barrels below the maximum allowable figure for the state while Kansas and Louisiana continued to show the greatest excess production.

Champlin Refining Company of Enid, Monday, October 13,

CRUDE RUNS TO STILLS, GASOLINE AND GAS AND FUEL OIL STOCKS, WEEK ENDING OCTOBER 4, 1930

(Figures in barrels of 42 gallons)

District—	Potential Daily Capacity	Potential Capacity Reporting Total	Potential Capacity Reporting Per Cent	Crude Runs to Stills Total	Crude Runs to Stills Daily Average	Crude Runs to Stills Per Cent Operated	Gasoline Stocks	Gas & Fuel Oil Stocks
East Coast	612,700	612,700	100.0	3,497,000	499,600	81.5	5,182,000	11,774,000
Appalachian	141,300	123,700	87.5	519,000	74,100	59.9	980,000	1,075,000
Indiana, Illinois, Kentucky	390,800	381,000	97.5	2,001,000	285,800	75.0	5,497,000	4,339,000
Oklahoma, Kansas, Missouri	461,100	412,200	89.4	1,803,000	257,600	62.5	2,435,000	4,821,000
Texas	809,000	743,500	91.9	3,734,000	533,400	71.7	5,616,000	10,480,000
Louisiana-Arkansas	266,600	262,000	98.3	1,124,000	160,600	61.3	1,132,000	2,153,000
Rocky Mountain	150,100	139,700	93.1	336,000	48,000	34.4	1,794,000	1,182,000
California	898,500	883,600	98.3	3,728,000	532,600	60.3	13,805,000	104,627,000
Total week October 4	3,730,100	3,558,400	95.4	16,742,000	2,391,700	67.2	36,441,000	140,451,000
Total week September 27	3,730,100	3,558,400	95.4	17,512,000	2,501,700	70.3	37,222,000	140,779,000
The Total U. S. Figures for Last Year, Shown Immediately Below, are not Comparable with This Week's Totals because of Difference in Percentage Capacity Reporting								
Total October 5, 1929	3,467,200	3,273,000	94.4	19,082,000	2,726,000	83.3	31,765,000	*142,905,000
The Texas and Louisiana Gulf Coastal Figures Shown Below are Included above in the Totals of Their Respective Districts.								
Texas Gulf Coast	529,500	529,500	100.0	2,911,000	415,900	78.5	4,459,000	7,627,000
Louisiana Gulf Coast	147,500	147,500	100.0	775,000	110,700	75.1	894,000	1,410,000

*Final Revised.

posted a general reduction in price of Oklahoma crude oil, with $1.26 a barrel the figure for oil of 44 gravity and above and a three-cent drop for each degree in gravity below that figure. The reduction in the top grade is 31 cents a barrel.

Reduction Anticipated

Since there had been some sales of oil below posted figures, this posted reduction had been anticipated. Several independent refining concerns had been singled out as certain to post a lower schedule, since the recent drop in gasoline prices had left it impossible to pay the previous posted prices and make a profit on refining.

Champlin Refining Company is one of the larger of the independent refining concerns. Its crude oil requirements are chiefly in fields which produce oil of high gravity. Its purchases are from 10,000 to 12,000 barrels daily.

The new Champlin pipe line into the Oklahoma City pool has been completed this month and is not yet capable of carrying its full quota of oil.

Every indication is that this move by Champlin Refining Company will result in a general reduction of prices for Oklahoma oil. Other independent refining concerns will be compelled to follow the lower prices. It is accepted that producers will not be able to shift connections to the larger buyers, as these concerns have been retrenching rather than increasing their well takings.

Temblor Discovery Troublesome

Discovery of light oil in the Temblor zone at North Belridge probably will have only a long range effect upon crude and gasoline markets, but the completion of a good well in this district has created a slight nervousness among economists who have been pointing out the danger of a large production of similar crude at Kettleman Hills. The fact that it may be possible to develop a large flow from comparatively shallow wells in the North Belridge and Lost Hills districts will necessarily hang heavily over the market. The immediate district has become a potential threat, but the fact that most of the acreage is held by large companies favorable to curtailment is a comforting influence. Several wells are drilling in the district and it will require many more completions to determine the true significance of the discovery.

Although Kettleman Hills is producing only 24,000 barrels, the high gasoline content of the crude makes it a factor in both the crude and gasoline

HOW LAST WEEK'S DAILY AVERAGE PRODUCTION COMPARES WITH NECESSARY AND NORMAL QUOTA LIMIT

	Necessary Daily Average 4th Quarter 1930	Quota Limit Prescribed to Correct Previous Excesses	Actual Daily Average Week Ending October 11, 1930	Excess
Arkansas	59,518	59,518	52,400	—7,118
California	654,034	594,000	590,200	3,800
Kansas	115,407	105,554	115,950	10,396
Louisiana	57,704	57,704	67,450	9,746
Oklahoma	653,252	550,000	549,100	—900
Texas	767,167	775,000*	771,000	—4,000
Balance of U. S.	230,000	230,000	220,700	—9,300
Total	2,537,082	2,371,776	2,366,800	4,976

*Limit set by R. R. Commission beginning August 27.

IMPORTS OF PETROLEUM AT PRINCIPAL UNITED STATES PORTS

(Barrels of 42 gallons)

	Total Month Sept.	Total Month Aug.	Week Ended Oct. 4	Week Ended Sept. 27
AT ATLANTIC COAST PORTS—				
Baltimore	1,166,000	1,210,000	311,000	335,000
Boston	256,000	139,000	27,000	.....
New York	4,528,000	4,514,000	557,000	1,351,000
Philadelphia	1,035,000	1,034,000	269,000	140,000
Others	767,000	778,000	.....	205,000
Total	7,752,000	7,675,000	1,164,000	2,031,000
Daily Average	258,400	247,581	166,286	290,143
AT GULF COAST PORTS—				
Galveston District	193,000	261,000	.....	.....
New Orleans and Baton Rouge	367,000	289,000	.....	166,000
Port Arthur and Sabine District	.....	265,000	.....	.....
Tampa	114,000	93,000	.....	40,000
Total	674,000	908,000	.....	206,000
Daily Average	22,467	29,290	.....	29,428
AT ALL UNITED STATES PORTS—				
Total	8,426,000	8,583,000	1,164,000	2,237,000
Daily Average	280,867	276,871	166,286	319,571
Distribution of Total Imports Is As Follows:				
Crude	5,236,000	5,160,000	514,000	1,405,000
Gasoline	1,511,000	1,663,000	389,000	462,000
Kerosene	35,000	.....	.....	.....
Gas Oil	60,000	17,000	.....	60,000
Fuel Oil	1,584,000	1,743,000	261,000	310,000
Total	8,426,000	8,583,000	1,164,000	2,237,000

CALIFORNIA OIL RECEIPTS AT ATLANTIC AND GULF COAST PORTS

(Barrels of 42 gallons)

	Total Month Sept.	Total Month Aug.	Week Ended Oct. 4	Week Ended Sept. 27
AT ATLANTIC COAST PORTS—				
Baltimore	189,000	230,000	.....	81,000
Boston	192,000	271,000	..... "A"	137,000
New York	768,000	1,208,000	207,000	197,000
Philadelphia	402,000	658,000	.....	114,000
Others	287,000	163,000	75,000	86,000
Total	1,838,000	2,530,000	282,000	615,000
Daily Average	61,267	81,613	40,286	87,857
AT GULF COAST PORTS—				
Total	73,000	3,000	.....	.....
Daily Average	2,433	97	.....	.....
AT ATLANTIC AND GULF COAST PORTS—				
Total	1,911,000	2,533,000	282,000	615,000
Daily Average	63,700	81,710	40,286	87,857
Distribution of Total California Oil Receipts Is As Follows:				
Gasoline	1,617,000	2,114,000	207,000 "A"	498,000
Gas Oil	52,000	339,000	.....	52,000
Fuel Oil	239,000	80,000	75,000	65,000
Lubricants	3,000	.....	.....	.....
Total	1,911,000	2,533,000	282,000	615,000

"A"—Revised.

Weekly Comparisons of Permits Granted for New Wells

States—	Week Ending October 11	Previous week	This week 1929	Total this month	This month 1929	Total this year	Total this date last year	1929 year total
Arkansas	6	..	12	6	16	87	136	159
California	28	24	22	52	53	718	1,016	1,231
Louisiana	20	11	21	31	39	804	695	903
Kansas	14	..	33	14	43	786	882	1,079
Oklahoma	52	..	105	52	172	2,389	2,842	3,578
Texas	81	93	198	174	339	6,064	6,936	8,697
Total	201	128	391	329	662	10,848	12,507	15,647

markets. The recovery of gasoline from the large flow of natural gas gives the field added weight in the producing column.

The rapid increase in the use of natural gas in industrial districts has affected the fuel oil market. Reduced refinery runs have done much to offset this decreased demand, but prices have not responded appreciably to a smaller output. Fuel oil is moving at prices ranging from 50 cents to 70 cents, depending upon the quantity needed, method of shipment and the desire of the seller to move the commodity. The posted prices are higher, but spot shipments depend largely upon local conditions.

Light crude is plentiful in California and is moving on spot shipments at the posted prices. A few refiners have excess contracts and are willing to share their supply with others who are perhaps more fortunate in not having long contracts.

Price returns from wholesale marketing of refined products in the Mid-Continent have declined to a level that makes it imperative for the average plant owner to operate on distressed priced crude. Comparatively few independent plants in the district continue to pay posted prices for their crude supplies, while small plant owners in North Texas are filling their crude needs at 15 to 30 cents per barrel below posted quotations, with an abundant supply to choose from.

Refiners with cheap crude are shading the quotations on refined products to create sales volume, and are not enjoying the profit that would be normally theirs. Tank car lot sales of U. S. motor gasoline at five cents per gallon during the past week indicates that some of the plant owners are content to quote any price needed to attract buyers.

In some instances these breaks in the gasoline price structure have been passed on to the oil producers in the form of lower crude price offers, else loss of market outlet. Many producers have their backs to the wall and accept the price revision since major crude buyers are refusing to give relief, and generally reducing their daily takings.

Runs to stills reported by the American Petroleum Institute for the week ending October 11, aggregated 16,597,000 barrels, a daily average of 2,374,000 barrels. This represents a decrease from the preceding week of 145,000 barrels in total and 18,000 barrels in daily average. On a Bureau of Mines basis, as was pointed out at the beginning of this article, still runs apparently averaged about 2,445,000 barrels daily. Stocks of gasoline as of October 11 were reported at 37,125,000 barrels, a gain over the preceding week of 684,000 barrels. This reflects the waning seasonal demand for gasoline and further emphasizes the need for drastic curtailment to insure a satisfactory reduction in surplus supplies.

Summarized Review of Field Results

State—	Completions This week.	Completions Last week.	Oil Wells This week.	Oil Wells Last week.	Gas Wells This week.	Gas Wells Last week.	Failures This week.	Failures Last week.	Initial Prod. This week.	Initial Prod. Last week.
Arkansas	4	..	1	..	2	..	1	..	40	...
California	11	15	9	15	..	..	2	..	6,370	7,670
Illinois	2	2	1	2	..	..	1	..	2	51
Indiana	2	5	2	3	..	..	..	2	12	87
Kansas	19	35	4	13	8	12	7	10	785	6,635
Kentucky	21	14	11	6	2	4	8	4	1,108	226
Louisiana	26	20	5	7	9	4	12	9	3,215	2,527
Michigan	1	9	1	3	..	1	..	5	1,479	595
Mississippi	1	2	..	..	1	..	..	2	..	...
New Mexico	4	5	4	4	..	..	..	1	58,100	27,835
Ohio	46	36	13	9	23	14	10	13	238	403
Oklahoma	59	57	33	33	5	11	21	13	66,573	79,050
Pennsylvania	5	..	..	..	2	..	3	..	..	...
Texas	87	117	58	68	6	13	23	36	56,227	30,355
West Virginia	13	13	3	5	8	5	2	3	17	57
Total	301	330	145	168	66	64	90	98	194,076	155,491
Increase this week	..	..	..	..	2	..	..	..	38,585	...
Decrease this week	29	..	23	..	..	..	8	..	..	...

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WHILE PEWTER
BECOMES AN HEIRLOOM

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THE GUIBERSON FLEXIBLE CUP SWAB WITHSTANDS LONG, HARD USAGE AND LIFTS ALL THE FLUID

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Guiberson Swab cups resemble rubber bowls encased in baskets of wires. In lifting a column of fluid, when wrinkles or protrusions are encountered in the casing, the wires steer the cup rims safely past, while the rims still maintain a seal with the protrusion, avoiding any loss of the load. The weight of the column presses the cup rims firmly against the casing walls, making a perfect seal. Pressure from below collapses the cups, allowing far speedier passage into the hole. Users endorse this advanced principle by employing Guiberson Swabs to do most of the world's swabbing today.

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53,000,000 people will see this photograph in newspapers, rotogravures, magazines! It will catch their attention as it caught yours . . . it will lead them on to interesting, sales compelling paragraphs telling why Sinclair Mobiline is the finest *Pennsylvania* grade motor oil.

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Made in the newest, largest single refinery using PENNSYLVANIA grade crude exclusively.

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35¢ *per quart*

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Crude Oil Price Quotations

(Revised to October 14, 1930)

EASTERN STATES

(Effective September 18, 1930)

*Bradford Grade	$2.55
Penn Grade Oil in National Transit Lines (Pennsylvania)	2.30
Penn Grade Oil in Southwest Pennsylvania Lines (Penna.)	2.25
Penn Grade Oil in Eureka Pipe Line Lines (West Virginia)	2.15
Penna Grade Oil in Buckeye Pipe Line Lines (Ohio)	1.90
Cabell Grade Oil in Eureka Pipe Line Lines (West Virginia)	1.55
Corning Grade Oil in Buckeye Pipe Line Co.'s Lines	1.50
Somerset Oil in Cumberland Pipe Line Lines (Kentucky)	1.30
Ragland Grade Oil in Cumberland Pipe Line Lines (Kentucky) (Effective Jan. 29, 1929)	.60
Wayne Dist. Oil in Cumberland Pipe Lines	1.24

*Posted by Tidewater Pipe Company.

CENTRAL STATES

(Effective June 26, 1930)

Posted by Ohio Oil Company

Illinois	$1.65
Indiana	1.32
Lima	1.55
Plymouth	1.23
Princeton	1.65
Wooster	1.70

WESTERN KENTUCKY

All grades	1.55

OKLAHOMA-KANSAS

(Effective April 10, 1930)

Below 25 gravity	$ .75
25 to 25.9 gravity	.80
26 to 26.9 gravity	.85
27 to 27.9 gravity	.90
28 to 28.9 gravity	.95
29 to 29.9 gravity	1.00
30 to 30.9 gravity	1.05
31 to 31.9 gravity	1.10
32 to 32.9 gravity	1.15
33 to 33.9 gravity	1.185
34 to 34.9 gravity	1.22
35 to 35.9 gravity	1.255
36 to 36.9 gravity	1.29
37 to 37.9 gravity	1.325
38 to 38.9 gravity	1.36
39 to 39.9 gravity	1.395
40 to 40.9 gravity	1.43
41 to 41.9 gravity	1.465
42 to 42.9 gravity	1.50
43 to 43.9 gravity	1.535
44 and above	1.57

PANHANDLE

(Effective April 10, 1930)

GRAY COUNTY

Below 29 gravity	.755
29 to 29.9 gravity	.805
30 to 30.9 gravity	.855
31 to 31.9 gravity	.905
32 to 32.9 gravity	.955
33 to 33.9 gravity	1.005
34 to 34.9 gravity	1.055
35 to 35.9 gravity	1.09
36 to 36.9 gravity	1.125
37 to 37.9 gravity	1.16
38 to 38.9 gravity	1.195
39 to 39.9 gravity	1.23
40 to 40.9 gravity	1.265
41 to 41.9 gravity	1.30
42 to 42.9 gravity	1.335
43 to 43.9 gravity	1.37
44 and above	1.405

CARSON-HUTCHINSON COUNTIES

Below 32 gravity	$ .775
32 to 32.9 gravity	.825
33 to 33.9 gravity	.875
34 to 34.9 gravity	.925
35 to 35.9 gravity	.965
36 to 36.9 gravity	.995
37 to 37.9 gravity	1.03
38 to 38.9 gravity	1.065
39 to 39.9 gravity	1.10
40 to 40.9 gravity	1.135
41 to 41.9 gravity	1.17
42 to 42.9 gravity	1.205
43 to 43.9 gravity	1.24
44 and above	1.275

WHEELER COUNTY

Below 30 gravity	$ .755
30 to 30.9 gravity	.805
31 to 31.9 gravity	.855
32 to 32.9 gravity	.905
33 to 33.9 gravity	.955
34 to 34.9 gravity	1.005
35 to 35.9 gravity	1.04
36 to 36.9 gravity	1.075
37 to 37.9 gravity	1.11
38 to 38.9 gravity	1.145
39 to 39.9 gravity	1.18
40 to 40.9 gravity	1.215
41 to 41.9 gravity	1.25
42 to 42.9 gravity	1.285
43 to 43.9 gravity	1.32
44 and above	1.355

WEST TEXAS

(Effective April 10, 1930)

Crane-Upton, Crockett, Ector, Howard, Pecos and Winkler Counties and Lea County, N. Mex.

Below 25 gravity	$ .65
25 to 25.9 gravity	.68
26 to 26.9 gravity	.71
27 to 27.9 gravity	.74
28 to 28.9 gravity	.77
29 to 29.9 gravity	.80
30 to 30.9 gravity	.83
31 to 31.9 gravity	.86
32 to 32.9 gravity	.89

CRUDE OIL PRICES AT THE WELL

San Francisco, Cali., September 12, 1930

Effective September 15, 1930, at 7:00 A. M. the following are the current prices offered by
STANDARD OIL COMPANY OF CALIFORNIA
For Crude Oil at the Well (Except Elwood Terrace as below).
Price Per Barrel in Fields Indicated

Gravity	Signal Hill	Seal Beach	Alamitos Heights	Huntington Beach	Inglewood	Olinda-Brea Canou	Athens-Rosecrans Dominguez	Elwood Terrace	Torrance	Richfield	Whittier La Habra	Montebello	Coyote Hills	Santa Fe Springs	Newhall McKittrick Kern River	Midway-Sunset Elk Hills	Buena Vista Hills	Lost Hills	Coalinga	Wheeler Ridge	Gravity
14-14.9	$ .70	$ .70	$ .70	$ .70	$ .70	$ .70			$ .70	$ .70	$ .70	$ .70	$ .70		$ .55	$ .55	$ .55	$ .55	$ .55	$ .55	14-14.9
15-15.9	.70	.70	.70	.70	.70	.70			.70	.70	.70	.70	.70		.55	.55	.55	.55	.55	.55	15-15.9
16-16.9	.70	.70	.70	.70	.70	.70			.70	.70	.70	.70	.70		.55	.55	.55	.55	.55	.55	16-16.9
17-17.9	.70	.70	.70	.70	.70	.70			.70	.70	.70	.70	.70		.55	.55	.55	.55	.55	.55	17-17.9
18-18.9	.76	.76	.76	.76	.76	.76			.76	.76	.76	.71	.76		.55	.62	.62	.62	.62	.62	18-18.9
19-19.9	.82	.82	.82	.82	.82	.82			.82	.82	.82	.77	.82		.55	.70	.70	.70	.70	.70	19-19.9
20-20.9	.88	.88	.88	.88	.88	.88			.88	.88	.87	.83	.87			.78	.78	.78	.78	.78	20-20.9
21-21.9	.94	.94	.94	.94	.94	.94			.94	.94	.93	.90	.93	$ .92		.86	.86	.86	.86	.86	21-21.9
22-22.9	1.00	1.00	1.00	1.00	1.00	1.00			1.00	1.00	.98	.97	.98	.95		.94	.94	.94	.94	.94	22-22.9
23-23.9	1.07	1.07	1.07	1.07	1.07	1.07			1.07	1.07		1.05	1.04	1.01		1.02	1.02	1.02	1.02	1.02	23-23.9
24-24.9	1.12	1.12	1.12	1.12	1.12	1.12	$1.12		1.12	1.12		1.08	1.08	1.05		1.06	1.06	1.06	1.04	1.04	24-24.9
25-25.9	1.17	1.17	1.17	1.17	1.17	1.17	1.17		1.17	1.17		1.11	1.12	1.09		1.10	1.10	1.10	1.06	1.06	25-25.9
26-26.9	1.22	1.22	1.22	1.22	1.22	1.22	1.22		1.22	1.22		1.15	1.16	1.13		1.14	1.14	1.14	1.08	1.08	26-26.9
27-27.9	1.26	1.26	1.26	1.26	1.26	1.26	1.27		1.26	1.26		1.19	1.21	1.18		1.18	1.18	1.18	1.11	1.10	27-27.9
28-28.9	1.30	1.30	1.30	1.30	1.30	1.30	1.32		1.30	1.30		1.23	1.25	1.23		1.23	1.23	1.23	1.15		28-28.9
29-29.9	1.34	1.34	1.34	1.34		1.34	1.37			1.34		1.26	1.29	1.28		1.29	1.29	1.29	1.19		29-29.9
30-30.9	1.38	1.38	1.38	1.38		1.38	1.42			1.38		1.29	1.33	1.33		1.35	1.35	1.35	1.23		30-30.9
31-31.9	1.43	1.43	1.43	1.43		1.43	1.43							1.38		1.41	1.41	1.41	1.27		31-31.9
32-32.9	1.48	1.48	1.48	1.48			1.52							1.43		1.47	1.47	1.47	1.31		32-32.9
33-33.9							1.57							1.48		1.53	1.53	1.53	1.35		33-33.9
34-34.9							1.62							1.53				1.59	1 39		34-34.9
35-35.9							1.66							1.58				1.65	1.43		35-35.9
36-36.9							1.72							1.63							36-36.9
37-37.9							1.78							1.68							37-37.9
38-38.9							1.84							1.73							38-38.9
39-39.9							1.90							1.78							39-39.9
40-40.9							1.96														40-40.9
41-41.9							2.02														41-41.9
42-42.9							2.08														42-42.9

F. O. B. Ship

$1.32	
1.39	
1.46	
1.53	
1.60	
1.66	
1.72	
1.78	
1.84	

KETTLEMAN HILLS*

35-39.9	$1.10
40-44.9	1.20
45-45.9	1.35
50-54.9	1.50
55 and above	1.65

*Posted by Union Oil Company.

(See page 60)

CRUDE OIL PRICE QUOTATIONS (*Continued from Page 59*)

33 to 33.9 gravity	.92
34 to 34.9 gravity	.95
35 to 35.9 gravity	.98
36 and above	1.01

Magnolia Petroleum Company posts in Crane, Upton and Winkler Counties. Southern Crude Oil Purchasing Company posts only in Crane, Upton and Winkler Counties.

HOWARD AND GLASSCOCK COUNTY CRUDE

(Effective April 10, 1930)

Below 25 gravity	$ .65
25 to 25.9 gravity	.68
26 to 26.9 gravity	.71
27 to 27.9 gravity	.74
28 to 28.9 gravity	.76
29 to 29.9 gravity	.78
30 to 30.9 gravity	.80
31 to 31.9 gravity	.82
32 to 32.9 gravity	.84
33 to 33.9 gravity	.86
34 to 34.9 gravity	.88
35 to 35.9 gravity	.90
36 and above	.92

MARKHAM

The Texas Company

(Effective April 11, 1930)

All grades	$ .85

CORSICANA HEAVY

All grades	$ .80

SALT FLAT AND DARST CREEK

All grades	$1.15

SOUTH TEXAS

Mirando	$ .85
Luling	.85

NORTH AND CENTRAL TEXAS

(Effective April 10, 1930)

Ranger, North Texas, Mexia, Powell, Richland, Wortham, Currie, Moran, Nocona, Lytton Springs, and Van*

Below 25 gravity	$ .72
25 to 25.9 gravity	.77
26 to 26.9 gravity	.82
27 to 27.9 gravity	.87
28 to 28.9 gravity	.92
29 to 29.9 gravity	.97
30 to 30.9 gravity	1.02
31 to 31.9 gravity	1.07
32 to 32.9 gravity	1.12
33 to 33.9 gravity	1.17
34 to 34.9 gravity	1.22
35 to 35.9 gravity	1.255
36 to 36.9 gravity	1.29
37 to 37.9 gravity	1.325
38 to 38.9 gravity	1.36
39 to 39.9 gravity	1.395
40 to 40.9 gravity	1.43
41 to 41.9 gravity	1.465
42 to 42.9 gravity	1.50
43 to 43.9 gravity	1.535
44 and above	1.57

*Pure Oil Company, July 9, 1930.

GULF COAST

(Effective April 10, 1930)

Grade "A" all companies	$1.15

Grade "B"

Below 25 gravity	$1.00
25 to 25.9 gravity	1.03
26 to 26.9 gravity	1.06
27 to 27.9 gravity	1.09
28 to 28.9 gravity	1.12
29 to 29.9 gravity	1.15
30 to 30.9 gravity	1.18
31 to 31.9 gravity	1.21
32 to 32.9 gravity	1.24
33 to 33.9 gravity	1.27
34 to 34.9 gravity	1.30
35 to 35.9 gravity	1.33
36 to 36.9 gravity	1.36
37 to 37.9 gravity	1.39
38 to 38.9 gravity	1.42
39 to 39.9 gravity	1.44
40 to 40.9 gravity	1.46
41 to 41.9 gravity	1.48
42 to 42.9 gravity	1.50
43 to 43.9 gravity	1.52
44 and above	1.54

CLASSIFICATIONS OF GULF COAST CRUDE

The Texas Company: GRADE A—Beaume gravity not over 26.0 degrees at 60 degrees Fahrenheit; sulphur not over 0.5 per cent; in distilling 500 cc. of the crude that part of the distillate cut between 65 per cent off and 85 per cent off shall have a pour test of zero or lower. GRADE B—All Gulf Coast heavy crudes which do not meet tests for Grade "A" or for Gulf Coast light.

Humble Oil & Refining Company: GRADE A—All crude conforming to the following tests: viscosity not less than 100 seconds Saybolt at 100 degrees Fahrenheit; sulphur not over .4 per cent; Beaume gravity not over 25 at 60 degrees Fahrenheit. Cold tests of distillates having a viscosity of 1000 seconds at 100 degrees Fahrenheit shall not be over 5 degrees Fahrenheit. GRADE B—Embraces all Coastal crude which does not meet the tests for "A" grade crude.

Gulf Pipe Line Company: GRADE A—Beaume gravity not over 24 at 60 degrees Fahrenheit; viscosity not less than 100 seconds universal Saybolt at 100 degrees Fahrenheit; and sulphur not over 0.4 per cent. The yield of 250 viscosity reduced distillate at 100 degrees Fahrenheit not less than 30 per cent, and this 30 per cent not heavier than 20 Beaume, and its pour test not above zero Fahrenheit. The reduced distillate to be secured by reducing the crude with fire and steam until the bottoms have a flash of not less than 540 degrees Fahrenheit, and not more than 560 degrees Fahrenheit open cup, and the entire distillate obtained in this way reduced to a distillate of 250 viscosity. The 10 per cent cut in the original distillate having an average viscosity of 500 seconds at 100 degrees Fahrenheit to have a pour test not higher than 5 degrees Fahrenheit. GRADE B—Embraces crude which does not meet test for "A" grade.

Sun Pipe Line Company: GRADE A—Viscosity not less than 100 seconds at 100 degrees Fahrenheit Saybolt. Sulphur not over .4 per cent. Beaume gravity not over 25 at 60 degrees Fahrenheit. Cold Test: of distillates having viscosity of 1000 seconds at 100 degrees Fahrenheit shall not be over 5 degrees Fahrenheit A. S. T. M. Method. GRADE B—All Coastal crudes which do not meet specifications for Grade A crude.

REFUGIO

(Effective April 10, 1930)

Below 25 gravity (heavy)	.85

REFUGIO (Light)

Same as Gulf Coast 25 gravity and above.

PETTUS

(Effective August 21, 1930)

All grades	$1.15

BRENHAM

(Effective March 1, 1930)

All grades	.95

STATE CRUDE PRODUCTION TAXES

Oklahoma—Three per cent of gross value, less royalty interest.

Texas—Two per cent of gross value.

Louisiana—From four to 11 cents a barrel, depending upon gravity.

Arkansas—2.6 per cent of gross market value.

Montana—Two per cent of gross value at well.

Wyoming and New Mexico—Production tax based upon state and county assessments.

California—.66443 mills per barrel of oil produced and 17.39 cents per acre on proved oil lands.

WYOMING-MONTANA

(Effective April 11, 1930)

Wyoming

Byron	$1.65
Ferris	1.60
Elk Basin	1.55
Grass Creek	1.55
Rock Creek	1.35
Lost Soldier	1.05
Lost Soldier	1.00
Lance Creek	1.63
Mule Creek	1.20
Notches	.65
Big Muddy	1.38
Osage	1.63
Hamilton Dome	.85
Pilot Butte	1.58
Torchlight-Greybull	1.65
Lander	.80
Rex Lake	1.10
South Casper Creek-Poison Spider	1.00

SALT CREEK

Midwest Refining Company

29 to 29.9 gravity	1.00
30 to 30.9 gravity	1.05
31 to 31.9 gravity	1.10
32 to 32.9 gravity	1.15
33 to 33.9 gravity	1.185
34 to 34.9 gravity	1.22
35 to 35.9 gravity	1.255
36 to 36.9 gravity	1.29
37 and above	1.325

MONTANA

(Effective Feb. 15, 1930)

Sunburst	$1.65
Cat Creek	1.55
Lake Basin	2.20

NEW MEXICO

(Effective April 11, 1930)

Artesia	1.05
Hog Back	1.40
Maljamar	.95
Jal and Lea	*

(*) West Texas price scale used by The Texas Company and Humble Oil & Refining Co.

CANADA

(Effective June 28, 1930)

Oil Springs	1.95
Petrolia	2.02

LOUISIANA-ARKANSAS

(Effective April 11, 1930)

Homer, Haynesville, Caddo, El Dorado, DeSoto and Crichton and Cotton Valley*

Below 28 gravity	$ .87
28 to 28.9 gravity	.92
29 to 29.9 gravity	.97
30 to 30.9 gravity	1.02
31 to 31.9 gravity	1.07
32 to 32.9 gravity	1.12
33 to 33.9 gravity	1.17
34 to 34.9 gravity	1.22
35 to 35.9 gravity	1.255
36 to 36.9 gravity	1.29
37 to 37.9 gravity	1.325
38 to 38.9 gravity	1.36
39 to 39.9 gravity	1.395
40 to 40.9 gravity	1.43
41 to 41.9 gravity	1.465
42 to 42.9 gravity	1.50
43 to 43.9 gravity	1.535
44 gravity and above	1.57

*Shreveport-Eldorado's postings stop at above 40 gravity.

The posting on Cotton Valley is same as Caddo. From 36 to 52 and above the regular gravity schedule is followed.

The Texas Company pays North Texas gravity scale in North Louisiana.

STEPHENS

Below 28 gravity	$ .76
28 to 28.9 gravity	.81
29 to 29.9 gravity	.86
30 to 30.9 gravity	.91
31 to 31.9 gravity	.96
32 gravity and above	1.01

SMACKOVER

Below 24 gravity	$ .90
24 and above	1.05

United States Daily Average Production

Figures below are taken from the complete revised estimates of the AMERICAN PETROLEUM INSTITUTE except for the current week, which are advance estimates issued by the A. P. I. and are subject to revision:

1929	Oklahoma	Kansas	Texas (Outside Gulf Coast)	Gulf Coast	North Louisiana	Arkansas	Eastern States	Rocky Mountain	California	United States Daily Av.	United States Total
August	728,100	127,950	750,750	153,100	36,300	66,900	126,600	77,900	873,300	2,940,900	91,167,250
September	714,050	128,450	741,200	156,600	37,050	65,300	137,250	78,600	874,850	2,933,350	88,000,650
October	673,600	113,400	714,550	167,050	39,700	64,550	137,400	77,950	876,600	2,864,800	88,809,500
November	640,300	110,050	702,350	171,350	36,750	63,700	135,400	76,550	706,500	2,642,800	79,285,050
December	650,000	111,600	687,850	161,350	38,700	61,850	140,650	76,150	698,200	2,626,350	81,417,000
1930											
January	671,050	111,700	672,650	178,300	37,650	58,500	142,250	73,850	688,850	2,634,800	81,574,650
February	631,900	111,400	654,600	199,950	39,450	58,400	135,050	74,850	746,550	2,652,150	74,280,200
March	622,650	115,300	644,400	206,000	41,600	58,600	132,700	73,600	649,000	2,544,050	78,865,400
April	657,050	122,200	640,950	206,800	42,100	57,800	138,700	75,950	625,700	2,576,250	77,018,100
May	663,300	131,000	662,350	203,900	39,900	53,800	137,150	82,500	623,700	2,597,700	80,529,600
June	665,550	133,600	668,300	210,500	40,300	56,900	135,750	84,600	598,000	2,593,500	77,806,900
July	594,750	121,600	652,350	209,400	40,550	55,400	137,200	98,350	610,450	2,520,050	78,121,200
August	558,850	115,650	646,400	206,600	41,500	55,100	128,550	106,000	611,250	2,470,900	76,597,600
Sept.	558,950	116,600	605,950	200,850	40,200	53,600	121,250	110,550	605,700	2,413,700	72,410,650
Oct. 4	558,450	115,950	602,150	196,250	39,900	53,150	121,850	113,050	586,200	2,386,950	16,708,650
Oct. 11	549,100	115,950	602,400	195,750	40,300	52,400	120,050	100,650	590,200	2,366,800	16,567,600
Increase	.....	.....	250	.....	400	....	.....	.....	4,000	.....	.....
Decrease	9,350	.....	.....	500	...	750	1,800	12,400	.....	20,150	141,050

TEXAS
(Outside Gulf Coast)
PANHANDLE DISTRICT

	Oct. 11	Oct. 4
Carson County	7,150	6,950
Gray County	55,250	54,750
Hutchinson County	16,700	16,100
Wheeler County	550	700
Others	550	300
Total	80,200	78,800

NORTH TEXAS

Archer County	13,350	13,800
Burkburnett	7,800	7,800
Electra	10,300	10,750
Iowa Park-KMA	4,550	4,650
Montague and Cooke Counties	9,200	9,250
Wilbarger	15,500	16,200
Others	1,900	2,000
Total	62,600	64,450

WEST CENTRAL TEXAS

Brown County	5,450	5,400
Callahan County	3,000	3,000
Coleman County	2,550	2,700
Eastland-Desdemona	5,300	5,250
Jack County	2,050	2,100
Palo Pinto County	500	400
Shackelford County	5,650	6,800
Stephens County	5,350	5,250
Throckmorton County	700	700
Young County	15,100	15,500
Others	2,000	1,350
Total	47,650	48,450

WEST TEXAS

Crane-Upton Counties	34,200	34,750
Crockett County	2,100	2,100
Ector	8,050	7,200
Howard County	22,450	23,300
Jones County	1,350	1,300
Mitchell-Scurry Counties	2,100	2,400
Pecos County	3,300	3,200
Reagan County	24,100	22,200
Winkler County	61,900	61,200
Yates	103,400	104,450
Others	7,400	7,700
Total	270,350	269,800

EAST CENTRAL TEXAS

Boggy Creek	2,500	2,600
Corsicana-Powell	5,450	5,500
Currie	350	400
Mexia	4,150	4,200
Nigger Creek	200	200
Richland	150	150
Van Zandt	27,150	29,000
Wortham	600	600
Total	40,550	42,650

SOUTHWEST TEXAS

Chapman-Abbott	12,250	10,500
Dale	250	250
Darst Creek	45,000	44,700
Laredo District	13,550	12,550
Luling	9,900	10,000
Lytton Springs	900	850
Salt Flat	17,000	17,000
Somerset	1,500	1,550
Others	700	600
Total	101,050	98,000
T'tl Tex. (outside Gulf Coast)	602,400	602,150

TEXAS GULF COAST

Barbers Hill	19,800	17,900
Batson	1,150	1,150
Big Creek	3,950	3,450
Blue Ridge	1,800	1,850
Boling	1,000	1,000
Damon Mound	700	700
Esperson	3,200	3,250
Fannett	700	700
Goose Creek	4,500	4,700
Hankamar	1,600	1,400
Hull	7,400	7,700
Humble	15,850	14,400
North Dayton	1,100	1,250
Orange	1,900	2,000
Orchard	2,150	2,200
Pettus	8,400	8,400
Pierce Junction	10,450	10,500
Port Neches	1,450	1,500
Raccoon Bend	10,350	12,000
Refugio	26,750	27,100
Saratoga	1,200	1,100
Somerville	2,900	2,550
Sour Lake	2,200	2,200
South Liberty	3,200	3,300
Spindle Top	16,250	15,800
Sugar Land	11,900	11,700
West Columbia	4,100	4,000
Others	2,650	2,550
Total	168,600	166,350
Texas Total	771,000	768,500

OKLAHOMA

Allen	14,850	14,000
Asher	1,150	1,150
Blackwell	3,000	3,000
Bowlegs	14,650	14,900
Braman	3,200	3,200
Bristow Slick	15,000	15,100
Burbank	15,400	15,400
Carr City	7,550	7,400
Cromwell	7,300	7,350
Cushing	13,450	13,500
Davenport	1,150	1,150
Duncan District	8,850	8,850
Earlsboro	20,050	17,400
East Earlsboro	18,150	17,700
East Little River	13,600	12,500
East Seminole	2,200	2,200
Fox	1,150	1,200
Garber	4,550	4,550
Graham	3,250	3,300
Healdton	12,000	12,000
Hewitt	6,900	6,950
Hubbard	1,400	1,400
Konowa	18,550	18,150
Little River	24,200	23,600
Logan County	4,300	4,400
Maud	3,200	3,000
Mission	5,300	5,550
North Okmulgee	10,450	10,450
Oklahoma City	92,250	110,500
Osage (outside Burbank)	24,950	24,950
Papoose	2,650	2,650
Pearson	700	700
St. Louis	24,400	24,850
Sasakwa	6,500	5,700
Scholem Alechem	13,700	13,650
Searight	7,350	7,300
Seminole	14,300	14,300
South Earlsboro	12,250	9,150
South Okmulgee	6,900	6,900
Thomas	650	650
Tonkawa	6,200	6,250
West Asher	7,500	7,050
Wewoka	3,600	3,800
Yale Jennings	7,150	7,150
Others	63,250	63,550
Total	549,100	558,450

CALIFORNIA

Dominguez	10,000	10,000
Elwood-Goleta	35,800	32,000
Huntington Beach	28,000	27,600
Inglewood	15,500	15,200
Kettleman Hills	24,800	24,200
Long Beach	100,800	100,500
Midway-Sunset	60,000	61,500
Playa Del Rey	20,000	20,000
Santa Fe Springs	95,200	94,700
Seal Beach	18,700	19,000
Ventura Avenue	46,400	46,500
Others	135,000	135,000
Total	590,200	586,200

KANSAS

Augusta-Fox Bush	2,850	2,850
Churchill	3,600	3,550
Eldorado-Towanda	13,800	18,850
Florence-Covert	750	800
Greenwood County	18,200	18,400
Oxford	2,550	2,600
Peabody-Ebling	2,550	2,550
Rainbow Bend	1,050	1,100
Russell	3,000	3,000
Sedgwick	22,750	23,000
Voshell	10,350	9,250
Others	34,500	35,000
Total	115,950	115,950

NORTH LOUISIANA

Caddo Heavy	2,750	2,750
Caddo Light	8,700	8,950
Carterville	2,250	2,550
Cotton Valley	1,900	1,850
DeSoto-Red River	3,050	3,000
Haynesville	5,050	4,900
Holly	950	1,000
Homer	3,450	3,450
Urania	5,250	5,250
Zwolle	5,250	4,500
Others	1,700	1,700
Total North Louisiana	40,300	39,900

LOUISIANA GULF COAST

Bayou Boullion	150	150
East Hackbery	2,500	2,900
Edgerly	1,000	950
Evangeline	400	400
Hackberry	2,000	2,100
Lake Barre	1,000	1,000
Lockport	2,650	2,750
Port Barre	3,300	3,600
Sorrento	50	50
Sulphur Dome	2,300	2,500
Sweetlake	1,150	1,150
Vinton	8,250	9,950
White Castle	1,100	1,100
Others	1,300	1,300
Total Louisiana Gulf Coast	27,150	29,900
Louisiana Total	67,450	69,800

ARKANSAS

Champagnolle	3,600	3,750
El Dorado	4,100	4,050
Lisbon	900	900
Nevada	1,050	1,000
Smackover Heavy	36,400	36,400
Smackover Light	4,950	5,000
Stephens	900	900
Others	500	1,150
Total	52,400	53,150

MOUNTAIN STATES
WYOMING

Big Muddy	1,950	1,950
Elk Basin	850	800
Grass Creek	2,100	2,050
La Barge	1,500	2,100
Lance Creek	100	150
Lost Soldier	5,800	5,750
Oregon Basin	2,500	2,500
Rock River	2,100	2,150
Salt Creek	25,850	29,100
Others	4,950	5,450
Total	47,700	52,000

MONTANA

Cat Creek	1,100	1,100
Pondera	1,700	1,650
Sunburst	6,100	6,100
Others	100	100
Total	9,000	8,950

COLORADO

Florence	450	600
Fort Collins	1,150	1,150
Moffats (Craig)	1,050	1,000
Others	1,500	1,550
Total	4,150	4,300

NEW MEXICO

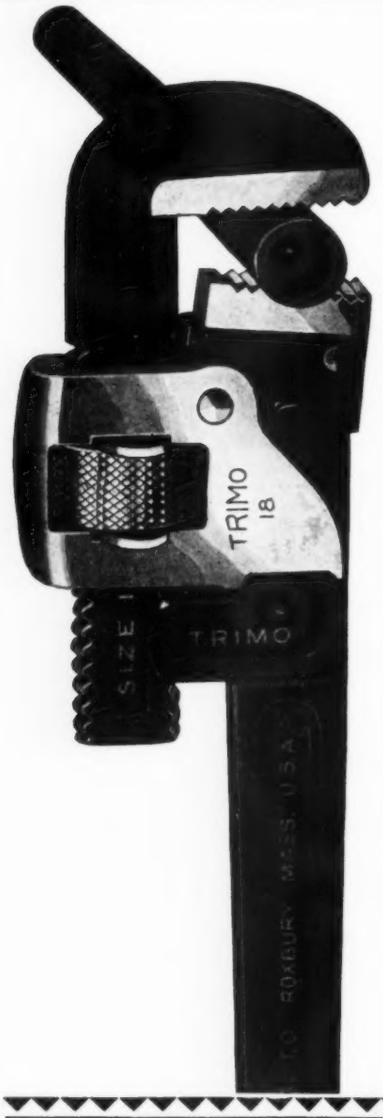
Artesia	700	700
Balance Lea County	7,600	7,000
Hobbs High	29,600	38,150
Hogback	400	400
Rattlesnake	1,300	1,250
Table Mesa	100	100
Eddy	100	200
Totals	39,800	47,800
Total Mountain States	100,650	113,050

EASTERN STATES
(Including Ill., Ind., Ohio, W. Va., Pa., Ky., N. Y.)

	112,500	114,000
Michigan	7,550	7,850
Total Eastern States	120,050	121,850

PRODUCTION SUMMARY

East of Rockies	1,675,950	1,687,800
Total U. S.	2,366,800	2,386,950



GOING AHEAD *on Merit*

THROUGH good times and bad, through booms and lulls, the TRIMO Pipe Wrench has held its place in the oil industry. That place, as most oil men know, is at the top.

It is doubtful if any tool has a more striking history of consistent, steadily maintained leadership than All-Steel TRIMO. Whenever strength, safety and service are seriously thought of, TRIMO asserts itself as the only logical choice.

All Steel TRIMO Pipe Wrench

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PERSONAL MENTION-MEN YOU KNOW

Holland S. Reavis of 120 Broadway, New York, has terminated all Wall Street connections and will give his entire time to writing. Mr. Reavis began his newspaper career in 1894. Early in 1901 he went to Texas and since that time has been identified with the petroleum industry. In 1902 he founded the Oil Investors' Journal, which he edited and published until 1910, when it passed to its present owners, who renamed it the Oil and Gas Journal. In 1911 he founded the Fuel Oil Journal (later renamed as the Oil Trade Journal), and in 1917 the Petroleum Register. He retired from the publishing business in 1919.

Mr. Reavis intends to write on current topics and will also "do" a history of the petroleum industry from 1901 down to date. His personal contacts with most of the men who have made oil history in the last three decades afford him a wealth of intimate material for his projected work.

R. S. Ellison

Vice-president and general manager of Midwest Refining Company, who is moving from Casper to Tulsa as president of Stanolind Crude Oil Purchasing Company

Jack C. Ballagh, secretary of Patterson-Ballagh Corporation left for New York City where he will embark for London. Mr. Ballagh is going to Europe in the interests of Bettis protectors and Bettis drill stabilizers, and while there will visit various oil fields in Germany and Roumania. While in London he will be at the Hotel Savoy and is expected to return to Los Angeles in December. He is accompanied by Mrs. Ballagh.

Norval White, Pacific Coast representative for the American Petroleum Institute, is now located in Los Angeles, following removal of the offices of the organization from San Francisco.

Prof. Juan Korzujin, head of the petroleum engineering department of the University of Mexico, was guest speaker at the regular Thursday luncheon of the Tulsa Geological Society, October 9. Professor Korzujin outlined the work being done by his department which was organized in 1926 and pointed out that he and the department had been criticised by officials of the Mexican government because of the preference of oil companies for American engineers instead of graduates of the University of Mexico. The society held a smoker Thursday evening and heard Frank C. Greene, Shell Petroleum Corporation, discuss Van H. Parker's paper, "Notes on Occurrence of Clastic Plugs and Dikes in Cimarron Valley Area, Union County, New Mexico."

T. S. Cox has opened an office for general geological consulting work at Beeville, Texas, and will interest himself particularly in Southwest Texas. For the past three years he has been with the geological department of Phillips Petroleum Company with headquarters at San Angelo, Texas.

Dr. George Steiner, 35, consulting geophysicist with headquarters in Houston, and American representative for the Eotvus torsion balances, was fatally burned Wednesday, October 8, when a wing tip of his cabin monoplane struck a tall pine tree as he was taking off in a wooded section in the edge of Tyler County, 20 miles from Kountze, the plane immediately crashing in flames. He was alone in the plane, but Earl Callahan, one of Dr. Steiner's assistants, witnessed the takeoff, and after the crash made an unsuccessful effort to drag him from the cabin of the plane.

Dr. Steiner was a native of Hungary, but had resided in Houston the past five years, and had become a naturalized American. He is survived by his wife, who was in Paris at the time of his death, and by his mother, who resides in Hungary. He was an enthusiastic flier, and had received his federal license several months ago. Dr. Steiner was associated with Dr. Donald C. Barton, consulting geologist and geophysicist.

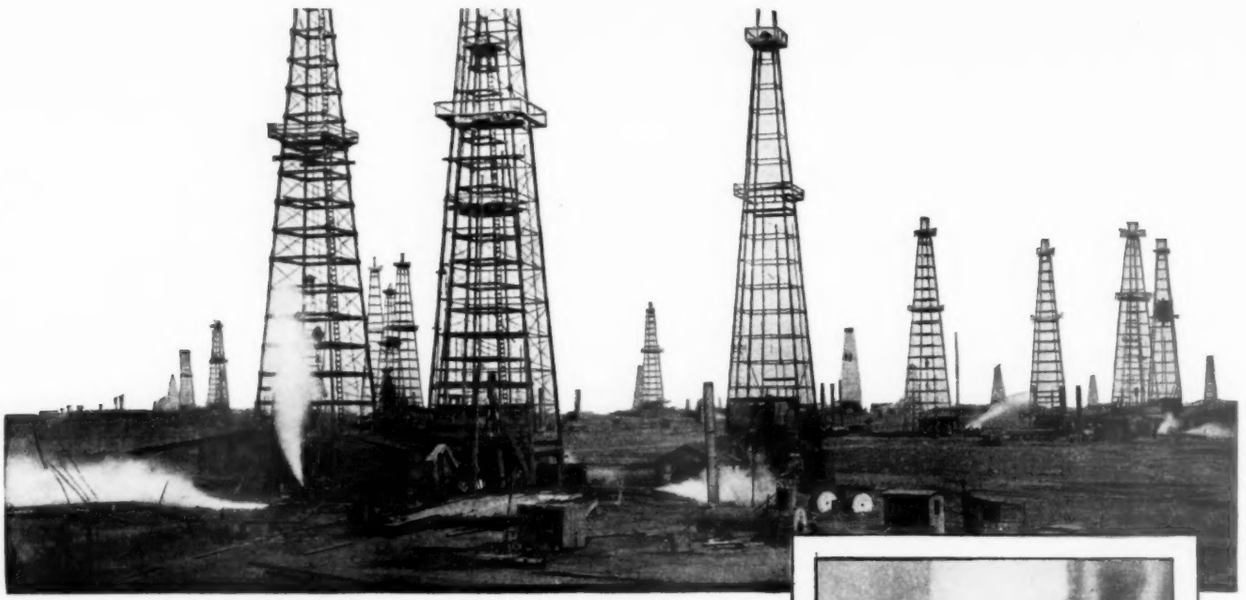
Jimmy Manion of St. Louis, won the exposition trophy in the annual golf tournament played over the course of the Tulsa Country club during the exposition. He drew as a final round opponent Logan L. Vanzandt, champion last year, and won four and six. Cyril Tolley, noted British amateur, withdrew from the tournament after qualifying.

A. C. Frampton of Miller Sand Pump Company, is to be principal speaker at the next regular meeting of the Drumright Chapter, A. P. I., Division of Production, to be held on Tuesday, October 21, in the Chapter Hall at Drumright. Mr. Frampton will explain the principles of a bottom hole oil, gas, and water separator which is now being manufactured by his company. Following discussion of this subject the meeting will be open for general discussion on equipment seen at the International Petroleum Exposition.

D. W. Harris

Vice-president and general manager of Arkansas Natural Gas Corporation, with headquarters in Shreveport, Louisiana. Henry L. Doherty & Company recently acquired controlling interest in Louisiana Oil Refining Corporation for the account of the Arkansas Natural Gas Company. Mr. Harris will be in charge of operation of both companies which will be operated as separate units

R. L. Eckerty, aged 41 years, employed by The Texas Company of California in the production department, died October 5 at a Los Angeles hospital following two months illness. Mr. Eckerty was well and favorably known in North Texas as well as in California, having been employed several years by Gulf Production Company at Wichita Falls and later at Fort Worth, going through the Burkburnett boom. Upon coming to California, Mr. Eckerty as employed by The Texas Company under vice-president James Birmingham. He was well known among oil companies as a well posted oil man, and for his aptness in preparing statistics, and explaining their meaning. Mr. Eckerty is survived by his widow, residing in Los Angeles; four brothers and two sisters, residing in Indiana. Funeral services were held October 12 at Eckerty, Indiana, a city named after his father, with enterment by the side of his father and mother.



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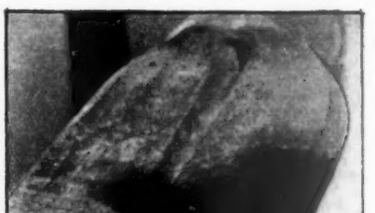

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Oklahoma--Kansas Field Notes

FLOYD L. SWINDELL, *Staff Representative, Tulsa, Oklahoma*

Oklahoma City South Wider Than First Thought

OKLAHOMA CITY.—Oils Incorporated's Ross 1 SE NW NW Section 2-11n-3w, a feature completion of last week in the Oklahoma City pool, flowed 13,200 barrels in three hours, 25 minutes at last report, making it good for better than 90,000 barrels at that rate for a 24-hour period. Present indications are that production width of the Wilcox sand will be considerably greater than that found in the southernmost part of the pool.

T. B. Slick interests' Wilson 1 NW SW NW Section 2-11n-3w, southwest offset to Oils Incorporated's Ross 1, had the top of the Detrital and sand at 6265 feet and produced 2231 barrels in one hour at a total depth of 6256 feet. Four Wilcox sand producers in this small sector have been completed within the last three weeks for a total initial production in excess of 150,000 barrels if calculated on a 24-hour basis. Empire Oil and Gas Company's Gustine 1 SWc NE Section 1-11n-3w, located on the northeastern edge of production and believed to be in close proximity to the fault line, had top of the Simpson at 6444 feet and is running 6⅝-inch casing at a total depth of 6475 feet in sand showing oil.

Activities in the southern part of the pool have been at a minimum for the past several weeks with an occasional small well completed. The most important completion for this part of the field were Indian Territory Illuminating Oil Company's State Land 7 NW SE NW Section 36-11n-3w, which was completed for 5407 barrels in 15 hours 50 minutes at 6678 feet, and same company's State Land 8 SW SE NW Section 36-11n-3w, which was completed at 6682 feet and flowed 1114 barrels in two hours along with 9,000,000 feet of gas.

Kansas Is Active With 29 New Locations in 16 Counties

WICHITA, Kansas.—Twenty-nine new locations, spread over 16 counties, were announced in Kansas during the past week, making it one of the most active periods in several months. McPherson County led with five locations, Greenwood County was runner-up with four, and Butler County had three. Pairs were reported in Reno, Cowley, Rice, and Harvey Counties.

T. B. Slick interests and Darby Oil Company's Keiter 1, NWc Section 25-17s-10w, about 20 miles northeast of the Raymond pool, in Ellsworth County, had what is believed to be Siliceous lime from 3212 to 3225 feet and filled 900 feet in one hour with oil testing 44.6 degrees at a temperature of 90 degrees. This test is midway between Tatlock et al's Soeken 1, CSW SE Section 25-17s-9w, which was dry at 3385 feet, and Slick, Pryor and Lockhart's Disque 1, SWc NE Section 23-17s-11w, which was dry at 3458 feet.

The Eastborough pool, Sedgwick County, has apparently been defined to the south on the basis of Producers & Refiners' J. H. Turner et al 1, NW NW SE Section 30-27s-2e, which had the base of the lime at 3220 feet and a hole full of water from a sand at 3271 to 3275 feet, approximately 35 feet lower than the top of the Wilcox in Vickers Petroleum Company's Keyes 1, NE NW NE Section 30-27s-2e. This is the second disappointment in the pool in the past two weeks, the west side having been defined by Graham Oil Company's Dennison 1 S½ NE NE NE Section 25-27s-1e, which had water in the chat at 3014 feet.

Approximately two miles northwest of the town of Cunningham, Skelly Oil Company's Miles 1 NE NE NE Section 30-27s-10w, is reported making an estimated 7,000,000 cubic feet of gas from a horizon at 2002 to 2020 feet. No definite information is available as to the correlation on this zone and the well is in an area which has had but few tests to the west.

The Texas Company's Munn 3, NE SE NE Section 12-20s-2w, in the McPherson pool is flowing about 145 barrels hourly from a sand at 2975 to 2982 feet, after having topped the chat at 2930 feet.

Daily potential for the Voshell pool, McPherson County, has been set at 68,233 barrels for October with an allowable daily production of 12.78 per cent of potential announced by Tom C. Johnson, proration umpire for the state. Pipe line outlet is 8800 barrels daily.

Completions Made Rapidly in Carter County Area

TULSA.—Eason Oil Company's Katschor 1, SW NE SW, Section 34-17n-4w, approximately nine miles northwest of Guthrie, set 8⅝-inch casing on top of the lower Layton at 4918 feet and produced 510 barrels of oil in 10 hours ending at 7:00 a. m. Monday morning. Bottom of the hole is at 4942 feet. The oil tested 47.5 degrees at 62 degrees. This test is in an area which has been highly considered for its oil and gas possibilities because of a trend play between the Oklohama City pool and the Lovell-Marshall pools of northwestern Logan County.

Southern Oklahoma

Droppleman et al's Fundis 1 SEc NE Section 19-7n-3e, southwest of the Greater Seminole district, had top of the Belle City lime at 3000 feet, reported to be over 400 feet lower than the same formation was encountered in Section 15-7n-3. This test is one of several which are playing for production trending southwest from the pools of the Seminole area. Nelson, Obermeyer et al are plugging to abandon their Abernathy-Knox 1 NE NE SW Section 10-4n-3e, after shooting and testing a sand from 2645 to 2649 feet.

Completions are coming at a rapid rate in the Tatums pool 1s-3w, Carter County. C. L. Anderson drilled plugs at 2280 feet and logged approximately 200 feet of sand between that depth and 2504 feet in his Eaves 5 NW NE SW Section 24-1s-3w. Another core will be taken before the liner is run for completion. Trevelyn Oil Company's Spigner 4 SW SW NW Section 24-1s-3w, is producing around 800 barrels from a series of sands logged between 2312 and 2525 feet. Gant and Garvin's Mitchell 1 NW NW NW Section 30-1s-2w, on the southeast portion of the extension, was completed early in the week and made approximately 1150 barrels in 24 hours.

In the east edge of the pool, Magnolia Petroleum Com-

pany is plugging back to test sands between 1900 and 2500 feet after drilling to a total depth of 4240 feet in its Mose Dickerson 1 NW NE SE Section 24-1s-3w.

Magnolia Petroleum Company has resumed drilling at its I. E. Harmon 1 NW NW SW Section 28-1s-2w, about 2¼ miles southeast of the Tatums pool. Total depth is below 3600 feet.

Reardon Drilling Company's Roush 1 NW NE SW Section 20-9n-5e, South Earlsboro pool, had the Wilcox sand at 4447 feet and at 4463 feet a hole full of water. This is an important test and may play a large part in limiting development in the area.

Carr City and Asher-Wanette are attracting a large amount of interest in view of recent completions. Gypsy Oil Company's Coker 4 NE NW SW Section 2-8n-5e, swabbed 720 barrels in 20 hours from the Wilcox sand and is being tubed for gas lift. Prairie Oil & Gas Company and T. B. Slick interests' Fixico 1 SW SE NW of the same section, produced 1195 barrels in 24 hours on gas lift. In the Asher-Wanette pool, Deep Rock Oil Corporation completed its Gibson 2 NW SW SE Section 23-6n-3e, for 2247 barrels in 22 hours from a sand between 3416 and 3438 feet.

Hobbs North End Wells Larger Than Anticipated

HOBBS, New Mexico.—Edge wells completed on the north end of the Hobbs field contributed larger oil and gas yields than anticipated during the past week after having revealed a dip in the structure. Shell Petroleum Corporation's H. D. McKinley 2-B, located in the SEc SW Section 20-18s-38e, is reported to have earned a potential of 23,911 barrels daily, with a total depth of 4205 feet. The same concern's McKinley 1-B, located at the center of the north line of the lease, was showing for a 10,000 barrel well, with gas estimated at about 8,000,000 cubic feet. The California Company et al's McKinley 1, a north offset to the latter, has been drilled to 4222 feet, and tubing set preparatory to complete for the new proration period.

Humble Oil & Refining Company and Kirby Petroleum Company's Grimes 1, Section 29-18s-38e, was carried to 4223 feet, thus becoming one of the deepest tests in the north portion of the field, but developed good saturation. Tubing has been installed in this test to complete in time for the new period. Tidal Oil Company scored a second heavy producer on its Grimes lease in completing No. 2 with a potential of 21,400 barrels oil and 9,750,000 cubic feet of gas at 4190 feet. This well is on the same unit as Grimes 1, which formerly held the production record for the field. The Texas Company's McKinley 2 was completed last week with a potential of 9828 barrels oil and 6,750,000 cubic feet gas at 4175 feet. Continental Oil Company is rigging up rotary on State 1-C to serve as a west offset to the latter.

Continental Oil Company and The California Company's A. E. Meyer 1, which was completed in the Eunice field last January making 50 barrels 34 gravity oil per hour at 3995-4001 feet, then shut in on January 4 for lack of a market, responded with a flow of 76 barrels oil per hour when opened into lease storage late last week. Arrangements have been made for The Texas Pipe Line Company to connect with this well, and deliver the oil to Pasotex Pipe Line Company at Wink, Texas, for consumption at the El Paso refinery of Pasotex Petroleum Company. Tidal Oil Company's Coleman 1, located in the Eunice pool, continues to flow an average of more than 100 barrels daily after shot at 3900-65 feet, with a total depth of 4147 feet.

Texas Panhandle Proration Breakdown in Prospect

AMARILLO, Texas.—Desperate attempt to prevent a complete breakdown of proration in the Texas Panhandle was scheduled to be waged here October 14 at a meeting of proration committeemen and operators with representatives of the Texas Railroad Commission.

During the past week proration rules were disregarded by the majority of operators in the flush areas of Gray County on the strength of a few majors and independents having continued to ignore proration production quotas. This turn of events resulted in Umpire H. J. Corcoran applying to the commission to hold a session with the operators.

Confusion has been injected into the Panhandle proration enforcement because of a group of operators fortified with private lines, refineries or crude contracts refusing to curb their production, while matters have been made worse by leading crude purchasers reducing their daily takings. The district received a maximum production quota of 80,000 barrels daily, but nominations of pipe line companies reach an aggregate of about 70,000 barrels daily for the new period.

Production for the district during the past week averaged 79,300 barrels daily, but many leases failed to participate in any production, while others greatly exceeded their allowances.

Humble Oil & Refining Company has elected to curb its crude purchases consistantly, and has notified a number of Gray County lease owners of intentions to sever connections October 15. Other buyers will not voluntarily take on these discarded connections.

Prairie Oil & Gas Company, while is also a large buyer, has assumed a different attitude, and during the past week authorized some of its outside connections to produce 100 per cent because of the latter being exposed to excess drainage by proration jumpers.

Complete or partial ignorance of proration allowances is charged by umpire Corcoran against Danciger Oil & Refining Company, Shamrock Oil & Gas Company, Wilcox Oil & Gas Company, Phillips Petroleum Company, Gulf Production Company, Champlin Refining Company and others. The former concern has a temporary injunction against the proration order, and will be used for a test case by the commission.

Austin, Texas.—The Texas Railroad Commission has announced a hearing on a petition filed by North Texas Oil and Gas Association that common purchasers of oil in North Texas have failed to purchase the amount of oil—69,000 barrels—that was allowed the district under the proration order of August 27, 1930, and that in the meantime they have purchased all of the production tendered them in other sections of the state, notably the Texas Gulf Coast.

North Texas Oil and Gas Association has named as defendents: Gulf Production Company, The Texas Company, Continental Oil Company, Shell Petroleum Corporation, Prairie Oil and Gas Company, and others. The argument is to the effect that these North Texas producers are unable to dispose of their production through these common purchasers; and, while it was agreed that the oil be accepted ratably, these defendents have failed to do so and in some cases have refused to accept any oil at all, and in some cases they accept only three to six barrels, which results in the sanding up of these wells, and an increased cost of operating them.

North and West Texas Field Notes

H. H. KING, *Staff Representative, Fort Worth, Texas*

Ward County Semi-Wildcat Well Is Good Producer

SAN ANGELO, Texas.—Texas Pacific Coal & Oil Company's semi-wildcat on the M. Barker land in southeastern Ward County uncovered a producing area between the Shipley and the Bennett pools, which are located 6½ miles apart, when the well flowed by heads at rate of 10 barrels oil per hour from midnight to 7 a. m. October 13. This well is producing from sandy-lime formation at 2256-2329 feet, and had to be shut-in pending the erection of tankage. Two 500-barrel tanks have been ordered built on the lease. It is located in the west corner of Section 27, Block B-29, P. S. L. Survey, and about three miles southeast of the Bennett pool. First solid salt was logged in the Barker well at 1035 feet, and lime at 2135 feet. The well is producing from a higher level than either of the two pools.

Removal of bridge formed at 4819-26 feet in Big Lake Oil Company's University 4-C, which was reported last week as having given the Big Lake field another record depth producer, resulted in the well gauging 2951 barrels of 58 gravity oil and 50,622,000 cubic feet of wet gas on a 21-hour test ending 7 a. m. October 12. The well flowed 3245 barrels oil and 51,490,000 cubic feet of gas during the following 24-hour period, with 150 pounds back pressure applied. It has a total depth of 8697 feet, and is the record producer for the field, which now has the seven deepest producing wells in the world, including one bottomed at 8923 feet. University 4-C bridged last week after being on production for three days. Production of the seven deep wells climbed to a new peak of 13,841 barrels daily early this week, while during the same period the 246 "shallow" wells produced 11,904 barrels, thus giving the field an average of about 100 barrels per well daily. An effort is being made to throw this field into the state-wide proration plan, but operators are to protest before the Commission at a special hearing to be held October 22.

Fuhrman Petroleum Corporation's wildcat on the Ford ranch in southern Andrews County had increased its oil flow to about 120 barrels daily, by heads, early this week while drilling lime below 4540 feet. This well began filling with oil at 4290 feet, and has failed to develop sulphur water after penetrating the oil horizon 250 feet, thus proving more favorable structural conditions than found in the Ogden pool to the north. Completion of the Ford ranch well as a producer is now a certainty, regardless of the outcome of deeper drilling, while it has 30,000,000 cubic feet of dry gas cased off in the upper section of the big lime.

Hull Named Umpire

Wichita Falls, Texas.—Appointment of L. V. Hull, Wichita Falls operator, as umpire for the North Texas district has been announced by Merrill W. Blair, chairman of the district proration committee. Shrinkage of crude nominations of the leading purchasers in the district lately has created a difficult task for the voluntary proration committeemen to prevent inequalities in enforcement of the Texas Railroad Commission's proration order. The services of a full time umpire have now become imperative, although this district was hopeful of avoiding the added eexpense, which must be borne by producers. Hull is well versed in pipe line activities throughout the district, having been general manager of the Wichita Pipe Line Company prior to its sale by local refiners and producers to Prairie Pipe Line Company.

Rusk County Wildcat Well's Output Shows Good Increase

TYLER, Texas.—Rusk County's wildcat oil producer assumed greater importance late last week when installation of tubing resulted in the output of high gravity crude increasing to a new peak and with a steady flow for the first time. The well was credited with having flowed 395 barrels of 38.6 gravity clean oil during 20-hour period ending 7 a.m., October 11, such being the first gauge taken after swinging 2½-inch tubing in hole at about 60 feet off bottom. Production during the next 24 hours was 327 barrels, and during the 24-hour period ending 7 a.m., October 13, the well only made 66 barrels of oil. This sharp drop in output was caused by the pulling of tubing so as to re-set with a packer in order to obtain maximum benefit from the small volume of gas accompanying the oil flow.

C. M. Joiner of Dallas and associates brought in Rusk County's first producer on the night of October 3, flowing by heads at rate of about 300 barrels daily from broken Woodbine sand at 3536-3592 feet after having been delayed more than a month from the time that the oil and gas horizon was first penetrated. The well has not been deepened since the sand was first encountered. Absence of water in the hole is accepted as a favorable indication that the well has not been carried through the Woodbine sand horizon, and deeper drilling may be tried later.

Many recognized authorities on Woodbine sand conditions in Central East Texas discounted the possibilities of commercial production being developed in this section of Rusk County even after the Joiner well made a brief flow of oil on drill stem test on September 5. The Woodbine sand formation was believed to exist only in negligible quantities, but not sufficient to trap oil, based on logs of old wildcat failures drilled in the general vicinity of the Joiner producer. The performance of the well has proven to the contrary, although the broken formation indicates a lenticular sand condition that may cause production to be erratic on nearby leases.

The Joiner area has been deprived of the usual wild spree of lease and royalty buying that has accompanied other Woodbine sand strikes in the district owing to the leading participants of such activity being in doubt as to the merits of the new discovery. However, trading has been gaining since the completion of the well, and late entrants have bid up prices on close-in acreage to $2000 per acre, part cash and balance payable in oil. This turn of events has been profitable for small operators, who are showing a willingness to turn a portion of their holdings under the proper inducement.

Development of the Joiner area is getting under way in all directions from the lone producer, with independent operators taking the lead. C. Rosenfield, Fort Worth operator, and associates are drilling below 1500 feet less than a mile to the

(*Continued on page 73*)

West Texas Area Restored to Favor by Crane Strike

SAN ANGELO, Texas.—Restoration of many thousand acres of West Texas lands to the potential oil producing class follows the establishment of a prolific high gravity oil area in a remote section of Crane County by Cranfill Brothers Oil Company and Gulf Production Company's wildcat test on the J. B. Tubbs ranch. The discovery well furnished a surprise completion with an initial output of 37 barrels of 39.3 gravity oil per hour and an estimated daily flow of 3,000,000 cubic feet of sulphur gas after passing up sulphur water horizons in the Permian dolomite formation, with production coming from a lower section of the dolomite than has been customary to test in the past. Steel line measurements of the hole shows the well eight feet in the oil and gas horizon, with a total depth of 4310 feet, or 1855 feet below the base of the white lime.

Revival of lease and royalty trading as well as re-drilling of many areas in the district is anticipated as result of this new wildcat producer having disproven the generally accepted theory that sulphur water in the Permian lime formation precludes the possibility of finding production in a lower section of the same formation. The rule governing sulphur water has been known to have exceptions as illustrated in the lime areas of the Howard-Glasscock County district and in Winkler County, but the Tubbs ranch discovery has brought the matter forcibly to the attention of operators.

Sand Hills has been designated by the owners of the Tubbs ranch producer as the name for the first producing area in western Crane County, having selected the name from the nearest flag station on the Texas Pacific Railroad, located about 15 miles to the north, while the topography of the well site is made up of a series of almost impassible sand dunes.

The Tubbs ranch well broke into prominence on the morning of October 7 when it made an estimated 100-barrel head of oil in five minutes from top of pay at 4302 feet, which had been tapped the previous midnight. The well remained shut in pending erection of tanks and gas separator, until the afternoon of October 9, when it responded with a head of 117 barrels. The hole then was deepened one foot, and the well averaged 37 barrels per hour for the first 8½ hours. The oil was free of water, and tested 39.6 gravity at 64° temperature. The sulphur content shows less than one per cent on preliminary test. The well was deepened six feet to a total depth of 4310 feet on October 10, but did not register a substantial increase in production. It flowed 270 barrels in six hours on the latter day, and 127 barrels in four hours before being shut in for storage on the morning of October 11. Storage for 5000 barrels oil is being erected, and when completed the well owners plan to deepen the hole about 75 feet. In the meantime an effort is being made to obtain a pipe line connection from one of the nearby trunk lines, although owners of the latter have been slow in responding with transportation aid.

Ownership of Surroundings

Cranfill Brothers Oil Company and Gulf Production Company drilled the Tubbs ranch test on a 50-50 basis, with the latter in charge of development work, on a three-section block. The cash consideration paid by Gulf Production Company for this interest was applied against the drilling of the well, and later an undivided half interest in two more sections were bought, as indicated on the accompanying map. Gulf Production Company's leasehold on the Waddell and Edwards ranches, which surround the discovery acreage were acquired several years ago on the strength of a surface high. Application of a geophone and other geophysical instruments by Gulf Production Company has revealed a structure several miles wide, and about 15 miles in length, extending in a general northwest to southeast trend.

A second test for the structure is nearing an interesting level to the south of the producer. This test is being drilled jointly by Cranfill Brothers Oil Company, Atlantic Oil Producing Company and Disney & Gholson, drilling contractors. The former holds one-half interest in the quarter section, while the latter have one-quarter each. It is located on the J. T. Muir land, and logged the white lime at 2330 feet, or 95 feet higher on structure than Tubbs 1. Muir 1 was drilling below 2700 feet early this week.

Five Pipe Lines Operated

Five of the eight major pipe line companies operating in the West Texas district have pipe lines, ranging from six to 10 inches in diameter, within 15 miles of the new pool in Western Crane County, while three trunk lines are within four miles of the producer. Such an abundance of closeby transportation facilities has never been equaled by previous wildcat strikes in the district. The combined idle capacity of the five nearby lines is in excess of 50,000 barrels daily for a direct movement to the Gulf Coast, and such a figure could be substantially increased if desired.

Shell Pipe Line Company has a pair of six-inch lines, rated at 24,000 barrels daily capacity, within one mile of the Tubbs well. This line is about midway between leases held by Shell Petroleum Corporation. The Texas Pipe Line Company has a 10-inch carrier about three miles west of the producer, but

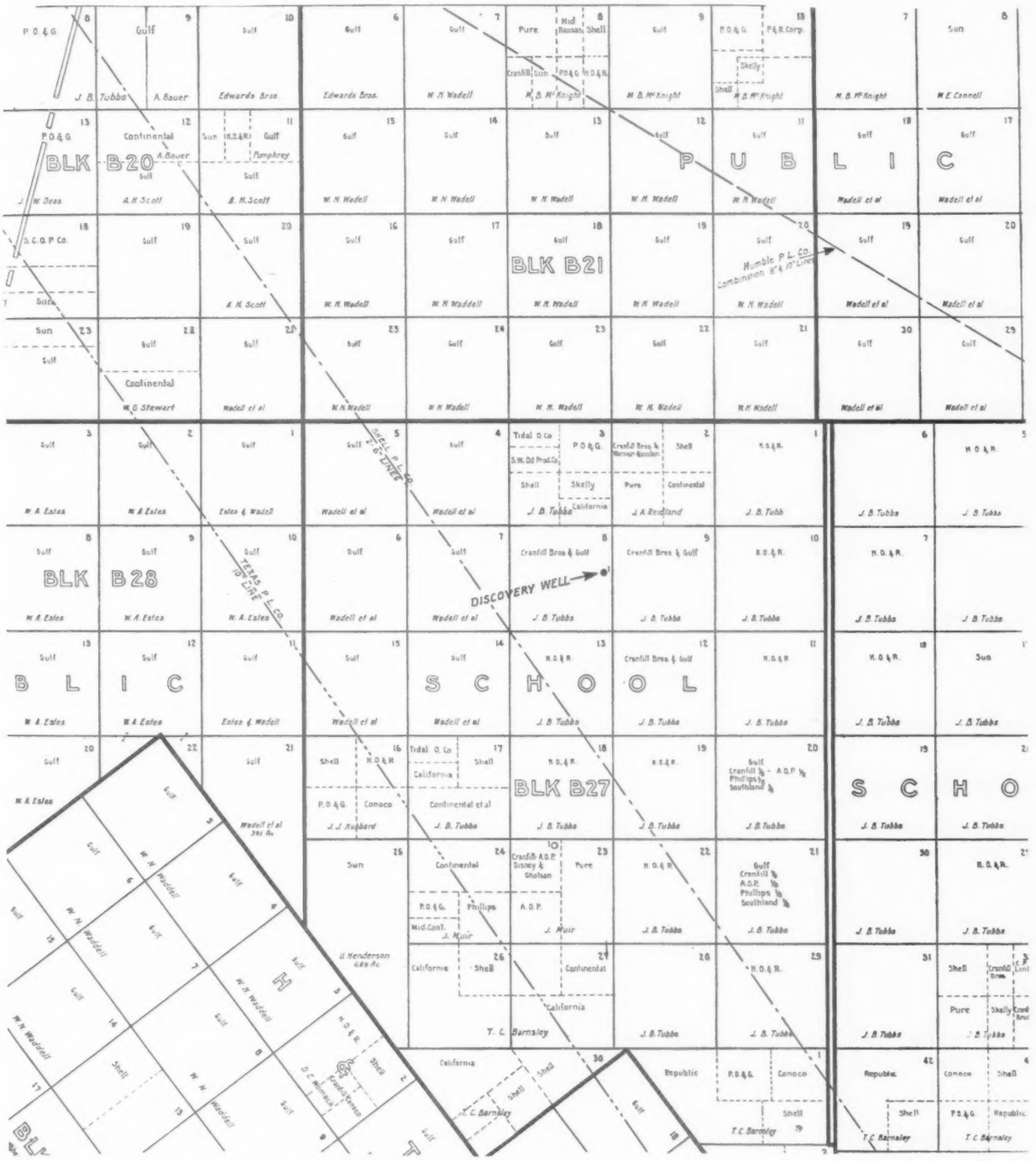
Briefed Log of Discovery

Principal formations, and oil, gas and water horizons on Cranfill Brothers Oil Company and Gulf Production Company's Tubbs 1 are listed below, with a surface elevation of 2516 (Gulf) feet:

430-505	Anhydrite	2900-2907	Gas showing
505-1400	Salt	2930-	Gas showing
1410-	Gas showing	2995-	Oil showing
1415-	Top brown lime	3188-	Gas showing
1500-	Set 10" casing	3795-	Sulphur water
1595-1610	Gas showing	3810-3825	Sulphur water
2455-	Top white lime	4015-4020	Sulphur water (2000 Ft.)
2665-	Gas showing	4108-	Set 6⅝" casing
2811-2815	Gas showing	4302-4310	Flowing oil and gas
2865-2885	Gas showing		

The Texas Company is not represented with leases. Humble Pipe Line Company has a combination eight and 10-inch carrier, extending within four miles northeast of the producer, and will be in position to handle any production later developed by Humble Oil & Refining Company, which has the second largest amount of lease protection. Atlantic Pipe Line Company has a six-inch extension line in Ward County that terminates in the Shipley pool, or within 12 miles of the Tubbs well, thus affording protection for Atlantic Oil Producing Company's leases and royalty interests in the new area.

Gulf Pipe Line Company's nearest line to the Tubbs ranch well is about 15 miles to the north. This line consists of a 10-inch carrier that follows the Texas & Pacific Railroad from Midland to Monahans, then turns northwest, with eight-inch pipe to the Hendrick field, with a lateral extending from Monahans tank farm to the Gulf-O'Brien field, Ward County. This combination line is now handling less than 4000 barrels daily between Monahans and Midland, because of all production in Winkler County of Gulf Production Company being sold on contract to Atlantic Pipe Line Company.



Divided lease ownership and presence of three partially filled trunk lines heralds a sizeable development program for the Tubbs ranch high gravity oil area in western Crane County, as shown on the above map.

New Van Line Secures New Jersey Company Share of Oil

TYLER, Texas.—Pipe line facilities for the Van field will be doubled before the close of 1930 as result of two subsidiary pipe line companies of Standard Oil Company of New Jersey having purchased materials and started preliminary work on laying a 10-inch pipe from the heart of the field to a point near Shreveport, Louisiana. One pump station and about 108 miles of trunk line will be required. Plans are to complete within 45 days after first material arrives on the ground. Humble Pipe Line Company will build and operate the line from Van field to the Texas-Louisiana border, while Standard Pipe Line Company of Louisiana will lay a line from the border to a point within eight miles of Shreveport, where connection will be made at the station and tank farm on the latter concern's Oklahoma-Baton Rouge system. The Oklahoma section of Standard Pipe Line Company's system is operated as the Oklahoma Pipe Line Company.

Invasion of the Van field with a trunk line by Standard Oil Company of New Jersey became certain last month when Pure Oil Company, largest producer and only crude purchaser in the Van field, acquired a stock interest in Ajax Pipe Line Company's double 10-inch line now being built from Glen Pool, Oklahoma, to Alton, Illinois, a distance of 450 miles. Standard Oil Company of New Jersey has controlling interest in Ajax Pipe Line Company, and Ohio Oil Company is also participating. Pure Oil Company's Middlewestern and Eastern refineries will be supplied with Mid-Continent crudes through Ajax Pipe Line Company and affiliated lines, while the surplus crude held by Pure Oil Company at Van will probably be delivered to Standard Oil Company of New Jersey for consignment to Baton Rouge.

The above pipe line deals and crude oil arrangements create a close hookup between Pure Oil Company and Standard Oil Company of New Jersey, and affords the latter an advantage over other interests that are known to be negotiating for the purchase of an interest in Pure Oil Company's prolific properties at Van, which rivals those held by leading lease owners in the Yates, Kettleman Hills and Oklahoma City fields. A visit to the Van field recently by officials of Ohio Oil Company as guests of Henry M. Dawes, president of Pure Oil Company, coincided with reports that the former concern may be interested in buying into the field, while Standard Oil Company of Indiana has also been prominently mentioned as a bidder.

Potential production of the Van field is now estimated at 750,000 barrels daily from 130 wells, while proration rules restrict the output to 27,500 barrels daily. Current production is being gathered and transported to the Gulf Coast by Pure-Van Pipe Line Company's 10-inch carrier, which is rated at 45,000 barrels daily capacity with six stations on the 210½ mile line. Pure Oil Company is the sole owner of this line, and has contract with Van unit members to take 25,000 barrels daily at Mid-Continent gravity scale prices, f.o.b. wells, until November 1, 1930. Crude receipts have greatly exceeded Pure Oil Company's refinery and contract requirements in recent months, as the company has gathered about 5,500,000 barrels of oil since it uncovered the field on October 14, 1929. The arrival of Standard Oil Company of New Jersey upon the scene with a line will preclude a curb on the field's output. A recovery of 200,000 barrels oil per acre has been predicted for a number of leases at Van. Pure Oil Company's share of the field's ultimate crude output is believed to be out of proportion to the company's future refinery and marketing requirements, so an alignment with a major oil company not so fortunately situated on crude reserves may occur in the form of a sale of interest in these particular properties.

Buying Line Right-of-Way

Humble Pipe Line Company is at work buying right-of-way for its portion of the line from Van. This company will have 94 miles of 10-inch line; the main line station, and the field gathering system in its portion of the project. Humble Oil & Refining Company was allotted 7.75 per cent of the Van 5800-acre unitized block, but has a lone pumper and a dry hole on its best located leases included in the unit, thus virtually removing the company as an important unit member when the first re-evaluation takes place on May 1, 1932. However, Humble Oil & Refining Company is one of the largest owners of producing acreage outside the unit, having completed five big producers, with work under way on five others. Gulf Production Company shares a minority interest in all holdings held by Humble Oil & Refining Company in the Van field.

Upon completion of additional pipe line facilities for the Van field it is quite likely that operators will insist on having the Texas Railroad Commission assign a larger proration allowance. The present allowance of 27,500 barrels daily is not sufficient to supply two 10-inch carriers with a profitable volume of oil.

I. P. A. A. to Renew Fight for Tariff On Gasoline and Crude

Tulsa.—National headquarters of the Independent Petroleum Association of America will be established in Tulsa shortly and the second effort to have a tariff imposed on imported foreign oil started at once. This action was taken at a meeting of board of directors here last week. Headquarters of the Oklahoma division of the organization also will be in Tulsa. Directors of the national and state organizations took steps looking toward the enlargement of the organization as well as the forward movement in behalf of the tariff.

James H. Gardner, J. R. Simpson and H. F. Worley were named as a committee to zone Oklahoma and conduct the membership campaign. J. Edward Jones, vice president for New York will conduct the campaign in the eastern states. W. E. Disney, democratic nominee for congress from the first Oklahoma district, will continue his tariff organization work. He has helped to organize the I. P. A. A. groups in California, Illinois, Indiana and Ohio.

A parade over the downtown section of Tulsa with the tariff plea offered in scores of placards was one of the leading topics of conversation during the exposition. This parade followed the meetings of the boards of directors and was staged to draw public attention to the effort to get oil written into the tariff schedule. The terse wording of numerous placards drew both praise and criticism.

Gulf Coast and South Texas Fields

JACK LOGAN, *Staff Representative, Houston, Texas*

Pure Oil Plans Ultra Deep Test for Sweet Lake Field

HOUSTON.—Pure Oil Company, discoverer and sole developer of the Sweet Lake oil field, Cameron Parish, Louisiana, is proceeding with plans for an ultra-deep test in the proven portion of that field. The proposed well is to be Yount-Lee 10, and it will be located approximately 150 feet east of Yount-Lee 8, a producer.

The sole purpose of the test will be to explore sands never before reached with the drill, and that is a particularly interesting goal, considering the fact that virtually all production of the area has been from depths exceeding 5000 feet, and that one well, the deepest ever drilled in the field, is a good producer at 6813 feet.

The location for the proposed deep test is near the highest point on the structure. No cores will be taken and no tests made in formerly explored sands, and it is hoped that the untested formations will be reached in a relatively short time after spudding in.

Sweet Lake is in the regular salt dome region of South Louisiana, but in spite of deep drilling no cap rock or salt has ever been reached, and if a dome exists there it is probably beyond the reach of the drill. There are several other Gulf Coast fields of this "non-dome" type; for example, Lockport in Louisiana, and Orange, Goose Creek, Esperson and Hankamer in the Texas Gulf Coast.

The Sweet Lake field is located near the middle of Sweet Lake, a body of fresh water approximately one mile wide and two miles long, situated in a low, marshy country. The lake was formed less than 80 years ago by an enormous marsh fire, which burned out a deposit of peat about six or seven feet in depth. Beneath the six or seven feet of water in the lake the formations are: one foot of sand, one foot of butter clay, five feet of peat bog, then clay, then sand. The five feet of peat bog is very unstable, but the foot of butter clay above it serves successfully as a base for matting foundations for the derricks; that is foundations consisting of timbers laid crosswise on top of each other to form several layers, usually four. For guy wires, boiler houses and walks between the latter and the derricks piling foundations are used. A noteworthy feature of the field is its enormous gas pressure. In one well the pressure registered as high as 1880 pounds, freezing the pipe all the way out to the separator. First indication of oil possibilities was given through a gas seepage south of the center of the lake.

All the wells that have been drilled at Sweet Lake occupy an area of less than a quarter of a section. They are all on land now owned by Yount-Lee Oil Company. Of the nine completed tests, the first had a gas blowout and cratered, and one other, Yount-Lee 6, was also non-productive. The other eight were completed as producers in several sands, the principal ones being at 4500, 5200, 5600, 5900, and 6800 feet. The 4500-foot sand has been relatively unimportant.

Of the eight completed producers there are four which are still on production: Yount-Lee 4, 5, 8 and 9, and they have combined daily production of about 1150 barrels, most of which is from No. 9, the newest producer. That well, Yount-Lee 9, is the above mentioned producer with total depth of 6813 feet. The top of the sand was encountered at 6795 feet. The well came in August 5, 1930, flowing 1270 barrels of 30 gravity oil daily, and through October 7, 1930, it had produced 72,000 barrels—in a little over 60 days. On the latter date it yielded 1098 barrels pipe line oil, showing tubing pressure of 700 pounds. No. 9 is approximately 900 feet southeast of No. 8, and consequently it is about that distance from No. 10, the deep test that is to be drilled. Incidentally, No. 9 was not drilled as deep as it was originally intended to be carried, but the discovery of the prolific sand in which it was completed altered the plans.

The most prolific well at Sweet Lake has been Yount-Lee 5. It has yielded approximately 615,000 barrels since completion early in 1928, producing originally from 5660 feet, and later from 5718 feet, the present depth. It is now yielding around five barrels daily. Since the discovery of the first production in 1927, the Sweet Lake field has yielded a total of over 900,000 barrels of oil.

Two Producers Completed in Pettus Townsite Area

HOUSTON.—Two producers were completed during the past week in the townsite division of the Pettus field, Bee County, and several other wells in the district are down to interesting depths.

Al Buchanan et al's No. 1, Block 20, in the townsite came in flowing 775 barrels pipe line oil daily through a five-eighths inch choke with working pressure of 375 pounds, with 35 feet of screen set at total depth of 3900 feet. The other new producer was Houston Oil Company's Townsite 1, Block 39, which had estimated initial production of 25,000,000 cubic feet of wet gas, the rock pressure being 1000 pounds. The producing sand was found from 3885 to 3925 feet.

Batex Oil Company's Barnett 2 in the Cosden pool west of the town of Pettus, was plugged back from 3934 feet to 3888 feet, where screen was set, and according to a report late last week the well was being swabbed. Another well in that pool, Houston Oil Company's Newman 3, showed five fourbles of oil on drill stem test at 3700-3714 feet and has set 6⅝-inch casing for a test. Both these wells have encountered a new sand for the Cosden pool, all former

producers having been completed in sand several hundred feet shallower.

Aside from the above wells, chief interest at Pettus at present is in wildcats or semi-wildcats scattered over a wide territory. Cosden Oil Company's Stolzfus 1 in the pool opened by Nichols Oil Corporation near Normanna, is drilling shale at 4124 feet. Midway between that pool and the Pettus townsite E. M. Jones is drilling shale at 3726 feet in Rapp 3, after encountering the top of the Jackson around 2650 feet.

Hurlbut et al's J. C. Wood 1, which is five miles southeast of Beeville in the P. T. Irrigation Company Survey, Bee County, is drilling shale at 5075 feet. The well had a good gas show at 5034-54 feet. Hurlbut et al's Chestnut 1, a wildcat 12 miles from Skidmore in the Miguel de los Santos Survey, Bee County, is drilling shale at 1385 feet.

Wm. F. Morgan and Independent Oil & Gas Company are drilling deeper from 4971 feet in Quincy Ranch 1, in the A. J. Moyah Survey. Following setting of 12 feet of screen at the mentioned depth it swabbed salt water. The top of the Jackson was reported in the well around 4625 feet, and on September 12, 1930, it blew in as a wild gas well with odor of oil from 4932 feet. Later on drill stem test at 4950 feet it built up 350 pounds pressure and blew some wet gas and flowed salt water.

In the W. J. Porter Survey of Goliad County Union Producing Company cored salt water sand in Ray 30 from 3946 to 3951 feet.

Commission Plans to Reduce Darst Allowable October 25

SEGUIN, Texas.—The Railroad Commission of Texas has issued an order for a hearing at Austin at 10 o'clock Saturday morning, October 25, for considering reduction of allowable production in the Darst Creek field, Guadalupe County, the proposed decrease being considered as imperative because of water encroachment which threatens to damage the field. Pending the outcome of the October 25 hearing the outlet at Darst Creek will continue at 42,004 barrels daily, the amount fixed August 14 in the proration schedule which has been in effect since that date.

Gauging of all wells in the field was completed early this week, but official figures had not been announced on October 14. It is reported, however, that the total potential of the field is slightly higher than it was on the early August gauging. Offsetting the slight increase, however, is the fact that approximately 30 new wells were completed immediately preceding the taking of the new gauges, the total number of gauged wells now being around 200, as compared with only 165 at the time of the August gauge. Consequently the average potential per well, apparently, has declined. Furthermore, the gauges which have just been completed were for only eight-hour periods, whereas those in August were full 24-hour tests on all wells.

It is noteworthy, in connection with the actual gauging of the wells, that nearly all producers at Darst Creek are now on the beam, one reason for that fact being that operators rushed in pumping equipment for the recent gauge, as they were able to score considerably higher potentials by pumping wells which would normally flow only small streams.

A significant result of the recent gauging was its revelation of water in increased percentage and in large number of wells. Water intrusion is an expected development in a field of this type, but the large extent of the appearance of water here was regarded as alarming. Some of the wells on the east flank of the field showed from 90 to 98 per cent water, while on the west edge, adjacent to the fault along which the oil is accumulated, around 60 per cent water was shown by some of the wells.

As a result of such appearance of water, the belief was expressed in some quarters that serious damage might result from producing the field at a rate as great as or greater than that of the immediate past. It is in order to prevent such damage, construed as constituting waste of a natural resource, that the hearing before the Railroad Commission was ordered.

On the 24-hour gauges of wells completed August 14, Darst Creek field showed total potential production of 156,822 barrels daily from 165 pumping and flowing wells. The latter part of September an intensive drilling campaign began on inside locations, and as a result there are now approximately 30 more completed wells in the field. The drilling campaign, however, has temporarily subsided, and only a few rigs are now in operation in the field.

During the week prior to completion of gauges approximately half a dozen new wells were finished. Latest completions of Gulf Production Company included T. Dix 6, a 600-barrel well at 2556 feet, and Dix-McKean 11, which had 3000 barrels initial production at 2605 feet. Following those completions the company has had only one drilling operation in progress, as compared with a total of 10 operations several weeks earlier. Humble Oil & Refining Company completed Denman 15-A for 1000 barrels at 2588 feet. Magnolia Petroleum Company completed several wells just before the completion of official gauges. Annie Knodel 3 was a 400 barrel well at 2590 feet; Rand Miller 4 had initial production of 450 barrels at 2645 feet; Dix 9 came in for 500 barrels daily at 2597 feet; Dix 11 was rated at 500 barrels daily at 2580 feet; while Dix 10 and 12 were completed following setting of casing at 2578 and at 2562 feet, respectively.

Abandon Austin County Wildcat

Houston.—Humble Oil & Refining Company and Valley Oil Corporation have abandoned their wildcat, Hugo Hagan 1, located two miles south of Raccoon Bend production in the south part of the William Harvey Survey, Austin County. The bottom of hole was in hard sand at 5044 feet.

This abandonment closely follows another unsuccessful test attempting to extend production to the south, the above interests' Fritz Lamb 1 having been abandoned about a week earlier in hard sand at 5411 feet. The well on the Lamb tract was about 3½ miles south of production in the Raccoon Bend field, being in the Thomas Boatright Survey.

Get Large Producer at Sulphur Dome

Houston.—Union Sulphur Company has completed Fee 760 at Sulphur dome, Calcasieu Parish, Louisiana, as a large producer from the third commercial sand encountered in the well. On the third completion, made early this week, it came in flowing 4300 barrels 27 gravity pipe line oil daily through a three-quarters inch choke from sand logged at 5145-5158 feet. Temperature of the oil at the well was 95 degrees. The well formerly produced at depths of 4350 feet and 4870 feet. Prior to completion of this well in the lower sand early this week production at Sulphur dome was around 2300 barrels daily.

Get 850-Barrel Well at Spindle Top

Beaumont, Texas.—Yount-Lee Oil Company completed McFadden 113 at Spindle Top early this week. It began flowing 850 barrels daily through a one-half inch choke from total depth of 4020 feet. The oil tested 26 gravity.

Barbers Hill Deep Well Worked Over

Houston.—Yount-Lee Oil Company's Zadie Fisher 1, discovery deep well of the west flank of Barbers Hill, completed several months ago at total depth of 6929 feet, has been worked over and completed at 6700 feet. With six joints of five-inch screen set at that depth, it came in flowing 480 barrels, 30 per cent salt water, daily.

Sun Oil Company's Wilburn Fee 11 came in at 3455 feet producing 250 barrels of 25 gravity oil daily, and the same company's Chambers County Agricultural Association 6, a workover, had initial production of 1800 barrels through one-half inch choke. Sinclair Oil & Gas Company's McKinney Fee 4 was completed as a 175-barrel pumping well following setting of 175 feet of screen at 5250 feet.

On the north flank of the dome Humphreys Corporation has abandoned Scott 2 in heaving shale at 7697 feet. This well, located 3000 feet northwest of Humphreys Corporation's Kirby C-1, nearest producer on the northeast flank, yielded a small amount of oil, swabbing about 15 barrels daily, following setting of six joints of screen at 7296 feet, but it was not a commercial producer at that depth and was drilled deeper.

Plug Back Refugio Deep Test

Houston.—Independent Oil & Gas Company's Jerry Reilly 6, deepest test ever drilled at Refugio, with the bottom of the hole in sand and shale at 7618 feet, will be plugged back and side-tracked to test a 3600-foot gas sand. Mission Drilling Company's Moss-Heard 1, Block 111, Refugio townsite, next deepest test of the field, was drilling sand and shale at 7278 feet early this week.

Completions at Refugio the past week included one shallow well and one deep one. Union Producing Company's Fannie Heard 10 came in flowing 800 barrels daily following setting of 16 feet of screen at 3665 feet, and has held up consistently. Houston Oil Company's Jeter 1, Block 59, came in with estimated production of 50 barrels, 60 gravity gasoline through one-quarter inch choke, with working pressure of 2250 pounds. The producing sand was logged from 6441 to 6455 feet.

Complete Pierce Junction Well

Houston.—Warner-Quinlan Company, which entered the Gulf Coast several months ago as a producer, has completed its Minchen 1 on the north side of Pierce Junction dome, Harris County, as a flowing well. The initial production was 400 barrels 26 gravity pipe line oil, through 2½ inch tubing and a three-eighths inch choke. One joint of screen had been set at total depth of 4139 feet.

Complete 125-Barrel Well at Esperson

Houston. — Cranfill-Reynolds Company has completed Moores Bluff Corporation 5 at Esperson at 2306 feet. The well had initial production of 125 barrels pipe line oil 22 gravity. Five joints of screen were set in the sand. The same company is trying to sidetrack around 3700 feet in Vajdak 1, formerly a producer at 7386 feet, and holder of the record as the deepest producing well ever completed in the Texas Gulf Coast. With the bottom of the hole at 7386 feet, 400 feet of screen were set on bottom and the well for a while produced around 15 barrels of 45 gravity oil and 3,000,000 cubic feet of gas daily. The well had also yielded gas with a spray of oil at 5707-5752 feet.

The above deep well is on the east side of the producing field. Several hundred feet south of it Yount-Lee Oil Company is drilling hard shale and lime at 7356 feet in Moores Bluff 3, which originally drilled to 7592, and which blew in unexpectedly at that depth and ran wild for more than a day, producing gas and a spray of oil. It was then brought under control, and efforts to fish out pipe from the bottom of the hole proving unsuccessful, it was sidetracked around 7000 feet.

Institute Survey Shows Excess Gasoline Supply

New York.—A survey of gasoline working stocks at refineries just completed by the American Petroleum Institute reveals an excess supply as of September 30 of 8,238,000 barrels. This figure represents the difference between necessary working stocks and actual stocks of gasoline for that period. Following is a table showing actual gasoline stocks reported by the American Petroleum Institute for September 27, 1930, compared with figures on gasoline working stocks obtained through the survey, together with the indicated excess supply on hand in the major refining areas:

(Barrels of 42 Gallons)

District—	Gasoline stocks at refineries Sept. 27, 1930	Working stocks required Sept. 30, 1930	Excess of actual stocks over working requirements
East Coast	5,301,000	4,696,000	605,000
Appalachian	1,079,000	888,000	191,000
Indiana, Illinois, Kentucky	5,558,000	3,925,000	1,633,000
Oklahoma, Kansas, Missouri	2,470,000	1,914,000	556,000
Texas	5,969,000	4,319,000	1,650,000
Louisiana-Ark.	1,270,000	1,250,000	20,000
Rocky Mountain	1,813,000	1,173,000	640,000
California	13,762,000	10,819,000	2,943,000
Total U. S.	37,222,000	28,984,000	8,238,000
Texas Gulf Coast	4,786,000	3,501,000	1,285,000
Louisiana Gulf Coast	1,011,000	1,115,000	104,000

Rusk County Wildcat Well's Output Shows Good Increase

(*Continued from page 67*)

south of the discovery well. The latter are drilling in the northwest corner of the E. L. Pinkston 77-acre farm, M. Pena Survey. This test has a surface elevation of 363 feet. Frank Foster and Deep Rock Oil Company are moving in materials to make a rotary test a short distance west of the producer on the C. D. Ashby 75-acre lease, Juan Ximinez Survey. Alford and others have made location to the northeast of the producer on the W. L. Wallas farm, Pinney Survey. J. T. Netterville and Joe Denny are reported to have staked location to the south of the pioneer well on their Daisy Bradford lease.

Ed. W. Bateman, Fort Worth operator, and associates are moving in heavy rotary to drill in northern Rusk County on a 1400-acre block of leases recently assembled in the midst of major companies' holdings. These operators have made location 486 feet from the north line and 3080 feet from the east line of the Lou Della Crim 628-acre farm, Elvridge Sevier Survey, and will use their own rig, with William E. Cain in charge of operations.

Deepening of two temporary abandoned wildcats in Smith County will be carried out as result of deep production having been scored in Rusk County. T. B. Slick interests and J. G. Kugle, Jr., are cleaning out at 3509 feet on their M. Freeman 1, A. J. Lagrone Survey, to deepen to 4000 feet. F. L. Shackelford has the contract. Owen-Sloan Oil Company and R. H. Davis are installing heavy rotary on their J. H. Starnes 1, J. W. Allen Survey, to deepen from 3002 to 4300 feet, having succeeded in renewing leases on their 6400-acre block. Frank Foster will deepen the latter hole.

News From Rocky Mountain Fields

Montana I. P. A. A. Meeting October 18

Great Falls, Mont.—The Montana division of the Independent Petroleum Association of America will effect its permanent organization at a meeting to be held here October 18. Believing that Montana independents, along with others throughout the country, are facing a market crisis due to the importation of crude oil and gasoline, one of the main objectives of the association is to secure a tariff on petroleum and its products. A statewide canvass is being made by the Montana division officials and members, and a steadily increasing enrollment is reported by the secretary.

Plan Test for Geary Dome

Casper.—The second test on the Midway-Geary structures north and east of Casper, to be drilled according to a group operation plan, by Midwest Refining Company and its affiliated interests, will be on the Geary Dome, 12 miles east and a little north of Casper. Cellar is dug and a new type, all-steel derrick is to be erected immediately. Drilling is contracted with Olson Drilling Company of Tulsa which brought in the discovery well on Midway last month. It is believed that the formations which should produce oil on this structure will be found about 200 feet deeper than those on Midway Dome.

Contract Let for 8 Garland Field Wells

Billings, Mont.—Announcement was made here last week to the effect that Montana-Wyoming Oil Company of this city had contracted with S. C. Ferdig, independent operator, for a series of wells to be drilled on the company's properties in the newly-proved Garland field, northern Wyoming. In all, according to the contract, there will be eight wells drilled, all to the Madison limestone which is the producing sand in the Garland field. Lease of the Montana-Wyoming is one of the valuable ones in the field. It is in a part of the field which has been the only sector which has heretofore been oil-producing, having several small wells producing from shallower sands. The rest of the field has been proved for gas.

Plan Gas Line Outlet for Cut Bank

Great Falls, Mont.—Jerome Drumheller and other Spokane capitalists propose construction of a natural gas pipeline from the Cut Bank field, northern Montana, to Spokane and on to the Pacific Coast. It would cost $50,000,000 to $75,000,000. There are three wells completed in the Cut Bank field with an aggregate production of 30,000,000 cubic feet of gas per day.

Oregon Basin Pumping Operations Cease

Cody, Wyoming.—Ohio Oil Company's contract with The Texas Company for the sale of its Oregon Basin field oil having expired, and no arrangement having been made for its renewal, decision has been made to bring to a halt all pumping operations in the district for an indefinite period. There is but one active drilling well in the field at this time, being The Texas Production Company's well.

Idaho Gasser Good for 5,00[illegible],000 Feet

Boise, Idaho.—The gasser brought in by Crystal Dome Oil Company on a structure between Payette and Weiser, Idaho, has been capped. The well had an open flow of 5,000,000 cubic feet per day with a rock pressure of 1150 pounds. No announcement concerning the disposition of the gas has been made.

Get Gasser on Crystal Dome

Boise, Idaho.—Crystal Dome Oil & Gas Company brought in a gasser of commercial magnitude September 29 on the Crystal Dome structure 15 miles northeast of Payette and 15 miles southeast of Weiser. The well's initial production was about 35,000,000 cubic feet, but it has since decreased gradually until at present it is producing from 3,000,000 to 5,000,000 feet. Total depth of the hole is 1865 feet. Gas production in this part of Idaho will find a ready market in Payette, Weiser and Boise, as well as Spokane.

Midway Dome Well Put On Pump

Casper.—Midwest Refining Company and affiliated interests' discovery well on Midway Dome structure, 12 miles north of Casper, which was drilled into production last month and then delayed in final completion by a long series of accidents and various difficulties, has finally been put on the pump. About eight feet has been plugged off bottom to effect water shutoff in the second bench of the second Wall Creek. New seamless tubing is run and it is believed now that the test is ready for its first adequate 10-day production run.

Complete Gasser on Garmesa Dome

Grand Junction, Colo.—The completion of a 30,000,000 cubic foot gas well is announced by Fulton Petroleum Company on Garmesa dome, 26 miles northwest of Grand Junction, Colorado. It has been shut in. This company has a 25-year franchise to furnish natural gas to Grand Junction and Fruita, and plans extensions of its lines to Palisade, Delta, Olathe, and Montrose, as well as intermediate communities. Work will begin at once on the final pipe line surveys.

Seek Gas Franchise for Utah Communities

Salt Lake City, Utah.—Applications with the Public Utilities Commission of Utah for a permit to supply gas for light, heat, and power to Box Elder and Cache Counties, and Perrytown and the cities of Willard, Brigham, Wellsville, Hyrum, Logan, Richmond, and Smithfield and their inhabitants, has been filed by John McFadyen of Casper, and L. B. Denning of Dallas, Texas. Necessary municipal franchises have already been granted. This is a part of Ohio Oil Company and affiliated interests' gas pipe line system from the Baxter Basin and Hiawatha Dome fields, Southwestern Wyoming, into Utah and Idaho.

Midway Dome Well Cemented

Casper.—The discovery well on Midway Dome, 12 miles north of Casper, has been plugged back from 5215 feet in the second bench of the Wall Creek sand, and bottom water has been cemented off 20 feet. As soon as it has set, the plug will be drilled out to within eight feet of the original bottom, and the well will again be put on production. It is believed that this work will materially increase and improve the production which after a 15-day test was 600 barrels of fluid, of which about 400 barrels was oil.

News From California Fields

BRAD MILLS, *Staff Representative, Los Angeles, California*

Peak Production at Playa del Rey May Not Exceed 30,000 Barrels

LOS ANGELES.—Only the completion of a good well northwest of the present townlot activity in the Playa del Rey field saved this district from registering an uninteresting week, with developments in the midst of the principal producing area indicating a steady decline even from the present level unless new production is steadier in the future than in the past. The large number of drilling wells and possibility of small extensions make estimates very unreliable, but a peak of 30,000 barrels is being predicted by conservative geologists. Much is heard concerning the peak flow of fields in California, this critical turning point in the history of any area having a particular significance. The discovery well at Playa del Rey indicated a very high peak, but subsequent development in the townlot district near Venice has disclosed a poor sand condition.

An individual survey of the action of wells on production tests reveals many interesting sidelights. Several wells have been swabbed, responding with very small flows in many instances, and refusing to flow at all in others. Several wells have started with satisfactory flows, only to die after a short production test. Despite the various handicaps, several good wells have been completed and a few of the wells now producing have performed satisfactorily from the beginning. Compressors are being used on a few wells, while others are being rigged up to pump, following rather punt attempts to flow naturally. The dying of wells may be attributed to an unsteady gas pressure, encroachment of sand and various mechanical difficulties.

Several large leases, held principally by major companies, hold possibilities but due to conditions within the industry and the desire of the operators to comply with provisions of the curtailment plan, these large blocks will be developed on a large scale at this time. Concentration on the small townlot district should, under ordinary conditions, result in a large production and a rapid decline, but it seems that the field is not equal to the occasion and the townlot peak will fall short of a normal development of this type. More than 100 wells have been started within a radius of a few short city blocks and the toll of casualties will be high unless an unforeseen favorable turn is recorded. Even fields having a thick uniform producing zone have failed to stand the strain of townlot development; so it is obvious that wells started late in the drilling campaign stand only a slight chance of returning to the owners the total cost, plus a fair excess.

Mohawk Oil Company completed Tuttle 1, located a short distance northwest of the present townlot production, with an initial flow of 3000 barrels from about 6500 feet. The well came in without a liner, and although the flow of gas is not high, the pressure necessitated an early completion. The producer extends the field about 250 feet and is apparently on the northwest plunge of the structure. Intensive development probably will spread immediately to this district.

Los Angeles.—Production in California is still inclined toward a lower figure and is not more than 10,000 barrels above the 575,000-barrel mark, which is regarded as the allowable under the present plan after the various excesses are thrown in. Production a year ago was about 885,000 barrels, or nearly 300,000 barrels above the present level. This is equivalent to the elimination of a field like Santa Fe Springs during its peak production period. The present market structure could not possibly stand up under such a production as would be recorded in the absence of the present curtailment program.

Ohio Oil Gets Well

Ohio Oil Company, discoverer of the field, completed Recreation Gun Club 3 in the upper zone at 4020 feet with an initial production of 1100 barrels. Such a producer in the upper sand is an important development. More than 600 feet of formation was included in the final test, the 8⅝ inch shutoff having been made at 3410 feet. Efforts to develop production in the upper zone in various parts of the field have been made, and while the shallower zone was virtually ignored during the first few months of drilling, it may yield a steadier flow than the deeper sand.

Wells actually making hole total 110, with about 50 more active projects. Field production is about 20,000 barrels from 37 wells. More than a dozen new locations were made during the past week and additional locations will be made at a faster rate than completions are recorded until it becomes obvious that the intensive development can not be pursued at a profit. Deep sand production totals 13,000 barrels, with the shallow zone accounting for 7000 barrels. The appearance of cores in the shallow zone largely determines the decision to test or drill to the deep sand. Neither zone has been outstanding in any locality to make it a sure producing medium. Many of the smaller operators have had no previous experience in field development and are influenced in their decisions to test either zone by factors which many major operators would not consider.

Most of the larger operators have made no effort to obtain acreage in the field, but several independent operators have been attracted by the possibility of both shallow and deep production. Union Oil Company holds a large lease which will ultimately support many wells, while the Ohio Oil Company is well fortified with acreage. As might be suspected, these companies are not anxious to develop their holdings at this time and are content to protect the

edges of their tracts with a few offsets. Parts of these large blocks will not be uniformly productive and already the Ohio Oil Company has proven that some of its holdings are off structure.

The intensive townlot development centers somewhere near the top of the structure, unless the trend into the ocean may be pronounced. The sand "thickens" and "thins" out on short extensions and a good well on one block does not assure the same results on an adjoining tract.

Aids Employment

Despite the probability that many of the drilling wells will not prove profitable, the fact that the intense activity is furnishing employment for hundreds of field men and providing sales for the equipment manufacturers largely offsets the tragedy which may follow to investors. Funds for drilling are coming from butchers, bankers, bakers, and candlestick makers, so it is evident that those obtaining employment will be kept busy with money flowing from a wide range of industries. During the business depression unemployment is prevalent in the oil industry and only such activity as that at Playa del Rey can fill some of the large gaps. It is not to be construed that a useless drilling campaign is justified where employment is furnished, but the fact that men are working at Playa del Rey is one bright spot in a development program which may prove unprofitable.

A leading geologist is responsible for the statement that the field will not produce more than 30,000 barrels daily for any extended period and under no circumstances pass 50,000 barrels. A bunch of completions during successive weeks could send the output upward quickly, but the inevitable decline would undoubtedly take its toll. Conditions at Torrance were much like those at Playa del Rey, and it has been recalled that operations in the former district eliminated more small operators than any other field in the Los Angeles basin.

It has been a comparatively easy matter to obtain funds to drill on very small lots at Playa del Rey, due to the presence of oil and the desire of the average individual to participate in production. Great vans loaded with prospects are taken to view the lot in question, and a hurried survey tells the individual that the tract is within the proven limits of the field. In most instances this amateurish survey is correct, but the question of quantity and quality of production which may be obtained, rather than the mere probability that a well will be completed, should be considered. Many wells are being drilled on lots obviously too small to support a single operation. In a few instances the derrick foundations are reported to be outside the proper limits, but these disputes are of minor importance, except to the operators involved.

With two productive sands, present estimates may be too conservative, however. There is little likelihood of a sudden burst of production, since past completions have disclosed a low gas pressure in different parts of the field. A gradual climb to the peak probably will describe the course of production, with a large number of small wells accounting for the bulk of the flow, rather than a quick jump to a maximum flow from a few wells.

Move A. P. I. West Coast Office To Los Angeles

Los Angeles.—The Pacific Coast office of the American Petroleum Institute has been moved from San Francisco to Los Angeles, the transfer having become effective October 7. All records have been moved to the Los Angeles address, 530 West Sixth Street. The removal to Los Angeles brings the association closer to the development branch of the petroleum industry.

North Belridge Well in Temblor Considered Important

LOS ANGELES.—Completion of a 2750-barrel well in the Temblor zone in the North Belridge field was perhaps the most important California field development since the discovery of Kettleman Hills late in 1928 and paves the way for extensive drilling for the sand over a large district. The discovery well in the deep zone, Belridge Oil Company's Fee 15, came in from 5457 feet and has been producing 46 gravity oil at the rate of 110 barrels per hour and gas at the rate of 60,000,000 cubic feet per day since the beginning of the production test. Such a large production of very light oil is remarkable for a discovery well and the fact that the cut is negligible indicates that the Temblor zone holds great possibilities in this and neighboring fields. This is the same formation from which production is obtained at Kettleman Hills and the entire district has assumed a new position in California's list of producing areas since the extension to the south was made.

Interesting History

Belridge Oil Copany's Fee 15 has a very interesting history, having been tested in the top of the Temblor zone at 5086 feet about six months ago. Less than 100 feet of the sand was opened, however, and the well made only 30 barrels of light oil and about 3,000,000 cubic feet of gas. It was evident that deeper drilling should increase the yield, but the test was such a disappointment that the well lost much of its attraction from a speculative standpoint. Prior to the production test, the hole was filled with heavy fluid and one of the most expensive Christmas trees ever assembled was installed. The test was conducted in a more or less secret manner, but petroleum engineers who watched operations at a distance reported that the well probably would have made a better showing had the method of handling the fluid been different. Regardless of the merits of this criticism, the well produced enough light oil to lead to deepening operations and subsequent discovery of a commercially productive zone.

Deepening from 5086 feet was a tedious matter and difficult fishing jobs ensued. The final shutoff had been made prior to the original production test at 4935 feet with a string of 6⅝-inch casing. A 4¾-inch liner was landed on bottom. The well is flowing through four one-inch beans and the volume is increasing slightly.

Since the discovery of Kettleman Hills, the Temblor zone has held a peculiar significance, although it might be as barren as any other zone in many districts. It failed to produce to the south in the Midway district and the North Belridge field might be termed an intermediate area between the barren points and Kettleman Hills. No official announcement has been made by Standard Oil Company as to whether the zone was found in its Mascot 1, which was drilled to 9630 feet to become the deepest well in the world.

Favorable for Development

The question of the probable extent of the Temblor zone immediately becomes the most important factor concerning the discovery. The main Belridge and McKittrick Front fields to the south and the Lost Hills field to the north are the most likely prospects and geologists believe that the Lost Hills field will certainly prove productive in the Temblor zone. Since the formation is barren to the south and especially productive to the north (Kettleman Hills), Lost Hills immediately becomes the center of interest in the future development campaign, aside from the North Belridge field itself.

The entire district is flat and accessible, being traversed by paved highways, pipe lines and power lines. Development of a

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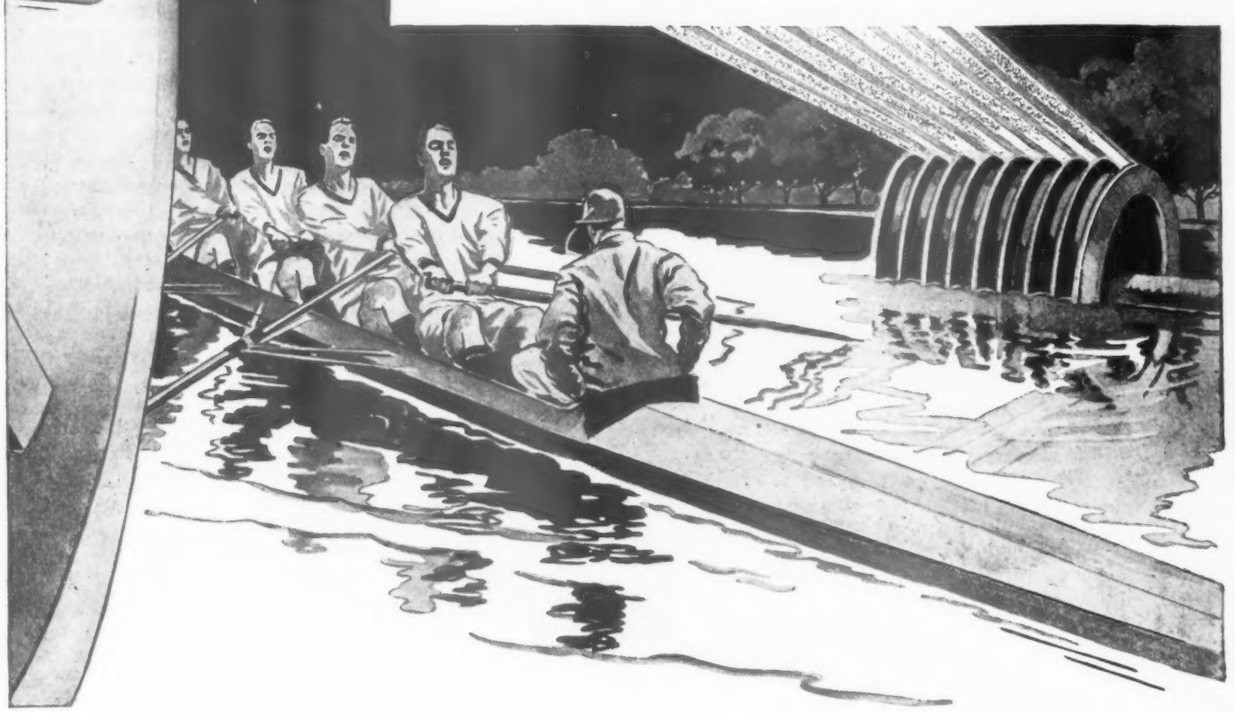

large production of light oil would push the development of heavier fields still further in the background. Several wells are being drilled for the Temblor zone and Richfield Oil Company already has found the formation higher in Belridge 1 than in the discovery well. General Petroleum Corporation, Rio Grande Oil Company, George F. Getty, the Ohio Oil Company and others are drilling for the deep zone over a wide area and the newest completion should increase development.

South Dome

The area between the Lost Hills field and the South Dome at Kettleman Hills has assumed a less doubtful position, although the discovery at North Belridge may lead to ultimate failure to find commercial production here. A few prominent geologists believe that the South Dome at Kettleman Hills will prove productive if drilled south of deep test recently abandoned. The theory that there is a connection between the South Dome at Kettleman Hills and the Lost Hills field is held by at least one well known geologist. Such a theory necessarily would place the South Dome farther to the south. Completion of Belridge Oil Company's Fee 15 naturally involves the Temblor zone over portions of a strip between the North Belridge field and the Middle Dome at Kettleman Hills.

Discovery of the Temblor zone at less than 5000 feet in the North Belridge field means that wells may be completed here at less than half the cost of those at Kettleman Hills. This factor is of tremendous importance and since at least three companies holding acreage at Kettleman Hills are firmly entrenched at North Belridge, a switch in operations is possible. Wells should be completed for $100,000, against costs ranging up to $300,000 at Kettleman Hills. The time element is also a big factor in favor of operations at North Belridge.

Oil of Good Quality

The oil produced at North Belridge is in some respects better than that produced at Kettleman Hills, although it is believed that the average gravity of the oil produced in the latter field will drop as development continues. Belridge Oil Company has about 500 feet of Temblor zone open and inclusion of more sand may result in a larger production of heavier crude. The gas does not contain more than one gallon of gasoline per thousand cubic feet, indicating an easy separation of the gas and oil.

Companies benefitting most from the discovery are: Richfield Oil Company, Union Oil Company, General Petroleum Corporation, Ohio Oil Company, George F. Getty, Continental Oil Company, Standard Oil Company, and Rio Grande Oil Company. Fortunately all of these operators are advocates of conservation, but one company needs the oil to meet its requirements. Belridge Oil Company holds a large block near the discovery well but does not plan an extensive drilling campaign.

Heavy Oil Production

The North Belridge field has produced a heavy oil in the shallow zone for years but has never been a major factor in the state total. It belongs to the chain of fields along the west side of the San Joaquin Valley and has not been among the active districts for several years.

The discovery is equivalent in every respect to the opening of an entirely new field and really should be regarded as such a development. The Temblor zone can not be associated with the shallow producing zone in the field, the Pliocene probably accounting for the upper production.

Plans for several tests have been made by at least three companies but an orderly development is anticipated. Intensive drilling probably would result in a production crisis, but curtailment measures of some nature undoubtedly will be applied to limit operations.

Two Wells Started on North Dome at Kettleman Hills

COALINGA, California.—Associated Oil Company and Standard Oil Company of California have each started another well on the North Dome at Kettleman Hills, the former's Whepley 2 having been located on Section 35-21-17, and the latter's No. 29J-85 on the same section. New locations at Kettleman Hills are much more important than locations in less critical fields and more significance is attached to a single operation here than might be suspected. Both Associated Oil Company and Standard are supporting the curtailment program but, due to conditions on the North Dome, find it necessary to drill additional wells.

Possibility of extensive drilling operations on fee land is remote, but conditions are constantly changing and offsetting could spread rapidly. A few months ago fears were held that development would get beyond control but the dominating influence of the major companies has held it in check. Fee land activity could easily become a menace and has threatened more than once to do so but through a combination of circumstances field work has been confined to scattering tests and necessary offsets.

As the expiration of the present curtailment plan approaches, outlines are being made by all companies with the view of drilling necessary wells. Since nothing definite has been decided along the lines of unit operation, a few companies are considering several possible plans of development. There are now only 12 drilling wells but a few of those started recently may lead to additional offsets. Spreading of development to all parts of the North Dome is possible, but the constantly changing conditions make it impossible to predict the probable trend of field work.

The field seems to harbor a slight spirit of unrest, with the knowledge that Kettleman Hills is perhaps the greatest light oil field in the world being apparent. A dozen drilling wells in such a field seems a slow method of development to interest who are anxious to tap these great resources. Inhabitants of the immediate district are clamoring for action, but they are chiefly interested from a selfish standpoint. Oil development in the vicinity of Coalinga has been limited for several years and it is only natural that the memory of former booms lingers and the desire for more activity persists.

Several of the fee tracts are held by interests long associated with the development of this part of the state and pressure is being brought to bear upon the operators. A few leases on the North Dome have been held for 20 years or more, and the desire to have holdings developed at once is natural. Sveral leaseholders are now very old men, having acquired the acreage the wildcat acreage prior to 1910.

Meanwhile the curtailment pertaining to government permits and fee land held by Standard Oil Company remains air tight and only the four specified wells are producing. Three wells are producing outside of the agreement, all being on fee land.

Superior Oil Company's Huffman 1, an edge completion which surprised the industry by coming in with an initial flow of 12,000 barrels, is still producing in excess of 10,000 barrels, but is declining gradually. Petroleum Securities Company's Felix 1, the first well to be completed outside the agreement, has declined to 350 barrels.

The performance of recent completions which included the greatest possible thickness of the Temblor sand has shown the possibilities of the zone below the completion point of the first producers.

Louisiana--Arkansas Field Notes

Zwolle Is Extended Two Miles Further Southeast

SHREVEPORT.—Indications that the Zwolle field in Sabine Parish, the most active area in North Louisiana, Arkansas, and the border counties of East Texas, will soon be extended two miles further southeast, making it 19 miles of freakish oil producing territory in the Zwolle chalk and marl from 2300 to 2700 feet, appeared likely Monday, October 13, when David M. Lide's Ponder 1, NW SE NW Section 15-7-11, slightly over two miles from tip of production in the southeast offshoot of the field, cored into a break in the chalk which showed considerable oil. Arrangements were immediately made for setting 6⅝-inch casing. The Marlbrook marl was topped at 2393 feet and the chalk at 2407 feet.

Pelican Natural Gas Company's Sabine Lumber Company 4, NE NW NE Section 11-7-12, extending the east field in Zwolle slightly over a mile south, has proven itself the largest well in the field. Coming in October 4, one week later it was maintaining a daily production of 3362 barrels of clean oil through ⅜-inch choke. R. L. Gay, Trustee, whose Bowman-Hicks A-1, Section 34-8-12, was completed last Thanksgiving Day to extend production 12 miles northeast, says the new well is larger than Bowman-Hicks A-1, hitherto the largest well in the field. Standard Oil Company of Louisiana, which has an interest in the new producer, has completed a four-inch gathering line to the well and is taking the oil.

Edge wells in three directions from producing parts of Zwolle were recorded as failures during the last week. In a sand producing field this would indicate possible limits of production, but in Zwolle their failure attracts but passing notice due to the fact that it has become usual for a failure in Zwolle to offset a producer and vice versa. In fact in that field not a single large well has ever been offset by anything larger than a small pumper and often by a dry hole.

A quarter of a mile northeast of production in the northeast edge of the field, Arkansas Fuel Oil Company tested dry and has temporarily abandoned Russell 1, NW NE Section 26-8-12, at total depth of 2600 feet in the Zwolle chalk.

More than three-fourths of a mile northwest of production in the west Zwolle (Blue Lake) field, R. L. Gay, Trustee, after topping the Marlbrook marl high in Sabine Lumber Company 5, Section 15-7-14, has abandoned the test as salt water at total depth of 2723 feet. Marl was topped at 2116 feet and 6⅝-inch casing set at 2116 feet.

Abandon Extensions

One-half mile north of the southeast extension of the field The Texas Company abandoned Sille 1, Section 33-8-11, as a dry hole at total depth of 2515 feet in the Zwolle chalk. In the same section Merritt, Trustee, is rigging up for Louisiana Long Leaf 1. Eight miles northeast production in the southeast part of the field, Tom Davis is rigging up for Smith 1 in Section 27-8-10. In SW NW Section 4-7-11, Loring Oil Company's Trammell 1, which blew out recently and later was deepened, is flowing 30 barrels of oil daily through two-inch tubing at 2400 feet, 6⅝-inch casing having been set at 2276 feet. This well is a quarter of a mile northwest of the four-mile extension flowing well in that part of the field. A flock of new locations in that part of the field is expected within the next fortnight.

Twelve miles northeast of Zwolle, W. M. Coats drilling Collins 1, Section 28-9-10, Natchitoches Parish, on Saturday, October 11, was coring shale below 3200 feet after passing through a sand formation around the 3100 foot level. In that same parish S. D. McDaniels' Clark-Morse Lumber Company 2, Section 23-5-6w, which showed a little gas at 2536 feet has been abandoned as a salt water hole at that total depth.

The first of a series of tests planned for the newly opened Trinity horizon gas field in northwest Caddo Parish, near Rodessa, where a 12 million foot gas producer was completed some weeks ago at 5506 feet, the deepest commercial well in this territory, has been spudded in by Texas Louisiana Pipe Line Company, a subsidiary of United Gas Company, and 12½-inch casing set at 870 feet. The discovery Trinity horizon gas well in Panola County, East Texas, completed last summer by Natural Gas Products Company in its Roquemore 8, B. C. Jordan Survey, is being deepened from present total depth of 4645 feet, this company's second gasser, Tom Moore 3, in the same headright, having recently been completed as a gasser at total depth of 4720 feet in the Trinity.

El Dorado Chief Oil Company abandoned Simmons 1, Section 27-20-7w, a wildcat in Claiborne Parish, as a salt water hole at 2216 feet. In east Central Louisiana, Louisiana Gas & Fuel Company's Tensas-Delta A-1, Section 23-6-5e, Catahoula Parish, was dry and abandoned at total depth of 2830 feet. In the Spider district of De Soto Parish, a wildcat area, J. M. Hood, after getting both oil and gas shows in Hood 1, Section 3-11-14, abandoned the hole at 2762 feet as a salt water well after 6⅝-inch casing had been set at 2290 feet. Arkansas Louisiana Pipe Line Company, a Cities Service subsidiary, which has done considerable exploration in that area, erected derrick for a test in Section 1-11-14.

Mount Holly Test

Seven miles north of the small Mount Holly oil field in Ouachita County, Arkansas, Graves and associates' Walker, Trustee 1, SW SW Section 9-14-18, which topped Nacatosh sand at 1352 feet, tested one joint of oil through drill stem from 1845 to 1861 feet but a second drill stem test was only mud and water, the operators on the second test claiming no seat was obtained, so they are setting 6⅝-inch casing at 1845 feet with total depth of 1861 feet. Production in Mount Holly is in the 2700-2800 foot zone.

Three miles northeast of Mount Holly, Belmont and associates, after coring an oil sand at 2726 to 2730 feet, arranged to make a drill stem test in Dean 1, Section 16-15-17. A mile

northwest of Mount Holly, A. B. Turner, Trustee, tested 55 joints of mud and a trace of oil through drill stem from 2172 to 2178 feet and then hung drill stem at bottom of the hole at 2183 feet. This test topped the Nacatosh at 1663 feet.

Corley and associates spudded in a new test in the Miller County, Arkansas, wildcat field, the new test being Rose 1, NE NE Section 9-16-26. E. & F. Oil Company made their second dry drill stem test in E. L. Beck 1, Section 36-15-26, Miller County, from 2805 to 2811 feet but are coring ahead for the lower Woodbine which gave a small producer there last summer and started a flurry of drilling.

Lavaca Oil & Gas Company completed Moore 1, NW SW Section 27-8-30w, Sebastian County, Northwest Arkansas, as a 3,000,000 foot gasser at total depth of 1558 feet. Rock pressure is 250 pounds. In Madison County, J. W. Baxter has abandoned Hallem 1, Section 17-16-26, as a dry hole in gummy shale at total depth of 540 feet and has spudded in Hallem 2, in the exact center of the second, having set eight-inch casing at 22 feet and is drilling below 175 feet.

Rankin County Gas Well Is Jackson Field's Eighteenth

JACKSON, Mississippi.—The Rankin County section of the Jackson gas field added the field's eighteenth gas well during the week ending October 11 when Southern Petroleum Company's Investment 1, 2170 feet north and 1790 feet west of southeast corner of Section 12-5-1e, was completed at total depth of 2390 feet in six feet of Midway chalk making an estimated gas production of 50,000,000 cubic feet daily. Elevation is 269.5 feet and Midway chalk was encountered at 2384 feet with the Midway black shale having been encountered at 2316 feet. Six and five-eighths-inch casing was set at 2384 feet at top of the chalk.

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BOILER TUBES

Two other wells, one of which is showing heavy oil of about the grade, 13.2 gravity, encountered in Gulf Refining Company's Rainey A-1, Section 13-5-1e, completed last summer, are being drilled in. The well showing the heavy oil is Love Petroleum Company's Maley 1, SE NW Section 15-5-1e, Hinds County. Love Production Company's Crisler 1, NW SW Section 2-5-1e, Hinds County, in which 1¼-inch tubing was run for a syphon is making about 8,000,000 or 10,000,000 feet of gas daily, along with 2000 barrels of salt water and a show of the heavy oil. The other well drilling in is Le Fleur Oil & Gas Company's Shadwick & Brown 1, SW NW Section 11-5-1e, which topped Midway shale at 2344 feet with elevation of 261 feet, 6⅝-inch casing having been set at 2424 feet, still in shale.

Bay Springs Petroleum, Incorporated, having completed blocking 35,000 acres of wildcat land in Jasper County, south central Mississippi, 25 miles north of Laurel, has erected derrick in NW NE Section 21-2n-10 for J. H. Keyes 1. E. F. White, geologist for the company, has worked out a considerable structure on the block.

After several weeks delay due to lack of a water supply, Mississippi Drilling Company has spudded in its Scarbrough 1, NW NW Section 15-13n-14e, Winston County, Louisville district, and is arranging to set 15½-inch surface casing at around 225 feet. Ohio Oil Company, after setting similar surface casing in its 5000-foot test in Cantrell 1, NE NE Section 16-15-5w, Clay County, northeast Mississippi, has set 13⅜-inch casing in gravel at 1389 feet. Amory Petroleum Corporation is rigged up for one of its two new tests in Monroe County, Amory district, this being Carter 3, SE SE Section 7-13s-17w. Amory Development Company has recovered lost bailer in Bourland 1, Section 2-13s-19w, an old test in the same county, which had been drilled to 2912 feet, and is drilling again at that depth.

Plan 10-Inch Line

Looking forward to further development of the Amory gas field material is already being received at Amory for construction of a 10-inch line to Tupelo, Mississippi, Aberdeen, Okolona, Nettleton and several smaller municipalities. It is rumored that if the field's production later warrants it this line may be extended to Nashville, Tennessee.

Meanwhile in south Mississippi work of installing city distribution for natural gas is going forward in Crystal Springs, McComb City, Brookhaven, and Hazelhurst. It is reported that Pearl Valley Oil & Gas Company which has one of the largest wells in the Rankin County side of the Jackson gas field has contracted to deliver 4,000,000 cubic feet daily for a proposed line from here to these municipalities, at a wholesale rate of four cents per 1000. Jackson's open flow capacity from its present 18 gas producers is now estimated at 550,000,000 cubic feet daily and an outlet is beginning to be a problem especially as the majority of the early operators here except Gulf Refining Company, were small companies, who need a market for their gas production.

Chester County Oil & Gas Company, drilling Montgomery 1, in Decatur County, southern Tennessee, after topping sand at 1920 feet, went out of this sand at 1953 feet, passed through four feet of dolemite and went back into another sand in which four feet had been made on Thursday, October 10. This sand shows oil reaction in chloroform. Its geological significance is considered important due to the fact that it correlates geologically with the Wilcox sands of Oklahoma and Kansas. The Pennsylvanian, Mississippian, and Devonian are absent in south Tennessee where this test is drilling and its surface formation was lower Silurian or the top of the Ordivicion in the opinion of H. D. Easton, geologist for the test. The discovery of a sand of 33 feet in thickness which showed oil reaction under chloroform, opens speculation as to its pay possibilities in south Tennessee and north Mississippi.

COMPLETIONS FOR PAST WEEK IN U.S. FIELDS

CALIFORNIA

Company, Well and Location	Initial Production Bbls.	Depth
HUNTINGTON BEACH—		
Richfield Oil Co., Heaston 1	30	3475
KERN FRONT—		
Chanslor-Canfield Midway Oil Company, No. 36	150	2225
LONG BEACH—		
Dabney-Johnson Corp., No. 57	40	7390
Tom Cannon, Hall-Weber 3	1100	5045
Dixie Oil Corp., White 1	1500	7510
PLAYA DEL REY—		
Altadena Oil Co., No. 1	1000	6085
Pacific Western Oil Co., Stanley-Leiber 1	150	5965
J. L. Clarke, No. 1	1200	6220
Ohio Oil Co., Gun Club 1	1200	4020

KANSAS

Company, Well and Location	Initial Production Bbls.	Depth
COFFEY COUNTY—		
Spencer and Derby Oil Company, Guy "B" 2	*	1655
ELLIS COUNTY—		
Barefield et al, Gatewood 1	*	3832
GREENWOOD COUNTY—		
International Oil Company, Lowery 2	60	2269
Empire Oil & Refining Company, Wasson 2	25	1708
Simmons et al, Greenwood 4	50	2104
O'Neil et al, Ford 1	*	1575
Aladdin Petroleum Company and Phillips Petroleum Co., Spain 1	*	2473
KINGMAN COUNTY—		
Slick, Pryor & Lockhart, Wetherall 1	*	4535
RENO COUNTY—		
E. L. Study et al, Henry 1	¶23	3333
SEDGWICK COUNTY—		
Fisher & Lauck, Trustee 6	650	2974
E. F. Jones et al, Rimel 1	*	3400
Alladdin Pteroleum Company et al, Christman 1	*	3297
STEVENS COUNTY—		
Argus Production Co., Hoon 1	¶12	2717
Argus Production Co., Ratcliff 2	¶3	2798
Argus Production Co., Bunyan 1	¶4	2801
Argus Production Co., Jester 1	¶5	2793
Argus Production Company, Forward Fee 1	¶5¼	2808
Argus Production Company, Ratcliff Fee 3	¶4	2818
Argus Production Company, Moore 1	¶2	2798

OKLAHOMA

Company, Well and Location	Initial Production Bbls.	Depth
BECKHAM COUNTY—		
J. F. Cuniff, et al., Brower 1	*	3789
CADDO COUNTY—		
Magnolia, Gregory 4	15	3388
CARTER COUNTY—		
Lively et al, Coffee 2	15	2005
Magnolia, Gill 8	516	2550
Trevelypn Oil Co., Spigner 3	447	2526
Magnolia, Spigner 2	638	2226
Magnolia, Spigner 2	1195	2362
Anderson, Eaves 4	2500	2343
Wirt Franklin Pet. Corp. Hooks 3	2090	2059
J. H. Hudson et al, Fulton 1	*	6000
CREEK COUNTY—		
C. G. Tibbens Oil & Gas Company, Carter 2	30	2358
Gibson and Metz No La Sellers	¶13	2958
Indian Territorpy Illuminating Oil Co. Hinton 1, OWD	40	2404
Gled Oil Company, Bruner 1	160	2542
Elinor Oil & Gas Co. et al, Proctor 1	*	3245
Dixie Drilling Co. Pugh 1 Biggs	*	2950
CHEROKEE COUNTY—		
Weaver and Proctor, Benge 1	*	6000
GARVIN COUNTY—		
McMinn and Arrowsmith, Carson 1	*	3026
GRADY COUNTY—		
Meridian Gas Co., Kinnard 1	¶7	2252
HUGHES COUNTY—		
Dixie Oil Company and Phillips Petroleum, Perryman 3	265	3717
Independent Oil & Gas Co., Jackson 1	¶20	2928
Magnolia, Kiker 1	*	3431

Tabulation and Comparison on page 56

Company, Well and Location	Initial Production Bbls.	Depth
LINCOLN COUNTY—		
Magnolia Petroleum Co. Wagner 2	*	5203
MARSHALL COUNTY—		
Scivner and Thompson, Blalock	*	800
Bob Neff et al, Vandervelt 1	*	820
MUSKOGEE COUNTY—		
J. V. Dunbar, West 1	*	650
A. Deagan, Kerr 1	*	1748
Robinson Bros. Lewis 7	*	2025
OKFUSKEE COUNTY—		
Pure Oil Companyp, Barnett 4	¶7	3412
Sunray Oil Company et al, Wilson 4	75	3490
OKLAHOMA COUNTY—		
Indian Territory Illuminating Oil Company et al, Renolds 1	170	6320
Indian Territory Illuminating Oil Company, et al, Ivanhoe Addition 1	4190	6385
Indian Territory Illuminating Co. et al, Theimer 7	1385	6395
Cromwell-Franklin Oil Co. Trosper Park 26	7015	6422
Blackwell Oil & Gas Co. et al, Clemer 1	3080	6604
Wright & Smith, Smith 1	11945	6598
Wirt Franklin Pet. Wright No. 3	18580	6545
Independent Oil & Gas Company, Harell 1	2335	6542
Gant & Garvin No. 1 Harris	¶150-2425	6540
Tom Slick Oil Company, W. H. Atkinson, Baker 5	6545	6420
OKMULGEE COUNTY—		
W. B. Pine, Bradford 1	¶14	2730
OKMULGEE COUNTY—		
Clarmont Oil Co. Cornelius 1	*	2728
OSAGE COUNTY—		
The Texas Company (OWD 1)	20	2915
The Texas Company and the Prairie Oil & Gas Company 8	35	2455
Oklahoma Natural Gas Co. No. 1809	*	2180
Smith, Leshy et al, No. 1	*	2237
PAWNEE COUNTY—		
Thompson and Black, Mote 3, (TWIN)	12	2089
Magnolia Pet., Newell 1, (OWD)	*	3041
PONTOTOC COUNTY—		
Benedum and Trees, Jacobs 2	35	1805
Empire Oil & Refining Company, Malley 1	45	2550
POTTAWATOMIE COUNTY—		
Gypsy Oil Co., Archer 2	385	3520
Indian Territory Illuminating Oil Company, Gregg 2	250	3469
STEPHENS COUNTY—		
Magnolia Petroleum, Farris 7	5	1865
Sykes et al, Broadbent 2	110	2051
SEMINOLE COUNTY—		
Carter Oil Company et al, Community-Amerada 2	*	4464
The Texas Co., Mayhue 5	*	3682
TULSA COUNTY—		
Ohio Petroleum Co., Haikey 1	20	1501
H. Breen et al, McKay 1	*	1240
WAGONER COUNTY—		
F. Lousing, Bird No. 1	*	1202

EASTERN STATES

PENNSYLVANIA

Company, Well and Location	Initial Production Bbls.	Depth
SOMERSET COUNTY—		
Unknown Parties, Moore 1	*	1400
Null 1	*	1400
GREENE COUNTY—		
J. T. Ingram & Co., Maple 1	¶½	962
WASHINGTON COUNTY—		
M. F. Whitehill & Co., Whitehill 3	¶½	1777
BEAVER COUNTY—		
George Freshwater, Aten Hrs. 1	*	....

WEST VIRGINIA

Company, Well and Location	Initial Production Bbls.	Depth
CALHOUN COUNTY—		
Southeastern Gas Co., Wilson 1	¶¼	2130
L. P. Bickel, Stump 12	5	....
GILMER COUNTY—		
Gilco Gas Co., Snider 1	5	2363
Mud Lick Oil & Gas Co., Lynch 1	¶1	1722
MARION COUNTY—		
Victor Tennant, Price 1	¶½	1665
Owens-Illinois Glass Co., Toothman 1	¶¼	....
ROANE COUNTY—		
Ohio Valley Oil & Gas Corp., Taylor 1	¶½	....
F. E. McIntosh & Co., Starcher 1	*	1755
WOOD COUNTY—		
Athey Bros. Athey 2	7	1278
BOONE COUNTY—		
Godfrey L. Cabot, Federal Coal	¶¼	....
LEWIS COUNTY—		
Moran Drilling Co., Allman 1	¶¾	2900
LINCOLN COUNTY—		
Woodyal Gas Co., Stowers 2	¶¼	2485
PLEASANT COUNTY—		
Hines Peevey Reed 1	*	925

KENTUCKY

Company, Well and Location	Initial Production Bbls.	Depth
DAVIESS COUNTY—		
George Engle, Yeiser 1	*	....
OHIO COUNTY—		
H. L. Ogle & Co., Whitley 3	¶¼	....
P. A. Rowe & Co., Royal 6	8	....
D. J. White & Co., Reynolds 1	*	....
HART COUNTY—		
Norris & Davis, McKinney 1	¶1-1000	600
McLEAN COUNTY—		
Creek Drilling Co., King 1	43	....
HANCOCK COUNTY—		
Cox, Ewell & Co., Bellamy 1	*	....
D. T. Bolling, Crow 1	10	....
WARREN COUNTY—		
P. M. Perkins, Perkins 2	*	1060
H. Julian & Co., Moats 1	*	516
LEE-OWSLEY COUNTIES—		
First National Bank of Jackson, Darch-Short Hrs. 5	10	....
ESTILL COUNTY—		
Gabbard & Cox, Evans 2	10	....
Evans 3	10	....
Amsler, McEldowney & Co., Shouse 12	1	....
JOHNSON-MAGOFFIN COUNTIES—		
Hupp, Duff & Co., May 10	10	....
Peoples Pittsburg Trust Co., Long 10	3	....
Bed Rock Oil Co., Wheeler 1	*	....
HENDERSON COUNTY—		
Niagara Oil & Gas Co., Hatchett 1	¶½	....
Sam Lee Oil & Gas Co., Saltz 1	*	....
Pearson Petroleum Co., Busby 1	4	....
Wood Oil Co., Young 1, 2	*	....

SOUTHEASTERN OHIO

Company, Well and Location	Initial Production Bbls.	Depth
WASHINGTON COUNTY—		
John C. Grau & Co., Steinhoff 6	10	1450
Burnett & Co., Perdew 5	¶½	1527
MORGAN COUNTY—		
Whitener & Co., Starrett 2	1	198
Ohio Fuel Gas Co., Williams 1	¶¾	575
MONROE COUNTY—		
Shay McMullen, Hines 12	¶¾	1742
Garber & Myers, Ball 5	¶¼	1742
Ohio Fuel Gas Co., Kinsey 1	*	1985

NORTHWESTERN OHIO

Company, Well and Location	Initial Production Bbls.	Depth
SHELBY COUNTY—		
O'Neil Bros., Perine 1	5	....
AUGLAIZE COUNTY—		
C. Tester, Kohler 2	1	....
WYANDOT COUNTY—		
J. S. Gallagher, Nichols 1	¶¼	1364
SENECA COUNTY—		
Jones & Coyle, Shireman 1	*	1449
Kansas-Ohio Oil Co., Harrison 3	2	....
Donels Estate, Grimes 1	*	....
Lang & Co., Hile 1	¶¼	....
HANCOCK COUNTY—		
C. A. & F. J. Peavey, Long 1	¶¼	....
HARDIN COUNTY—		
Unknown Parties, Ripley 1	¶¼	....
J. W. O'Neil & Co., Wedertz 1	*	....
O. A. Huntsberger, Burnison 1	¶¼	1380
Charles Aber, Kohler 3	¶¼	1340
The Kemrow Co., Traeger Hrs 2	¶¼	1360

CENTRAL OHIO

Company, Well and Location	Initial Production Bbls.	Depth
LICKING COUNTY—		
The Pure Oil Co., Priest 7	41	2832
Norpell & Co., Booth 2	116	3036
McDonald 3	*	3087
Sterl Brown, Frost 6	3	762
ASHLAND COUNTY—		
Coast & Co., Barnhart 10	20	752
D'Lano & Co., Devault 2	15	718
Ohio Fuel Gas Co., Smalley 1	¶2½	....
ATHENS COUNTY—		
Park Bowser & Co., Corley 1	¶½	1359
Whitmer & Co., Baird Bros. 1	¶1¼	3409
Noah Andrews & Co., Patton 1	¶2¼	3215
PERRY COUNTY—		
Gas Producing Co. of Ohio, Gallin 2	¶½	3027
Preston Oil Co., Larne 1	*	2860
Ohio Fuel Gas Co., Rusler 1	¶¾	3104
LORAIN COUNTY—		
Ohio Fuel Gas Co., Davidson 1	¶¼	....
Banks 1	*	....
A. F. Keck & Co., Wensink 1	¶2	2315
MUSKINGUM COUNTY—		
Wallsmith & C ., Baughman -	13	3516
Sagle & Co., Dunn 5	¶¼	4015
KNOX COUNTY—		
Bell Bros., Sheldon 2	*	650
Ohio Fuel Gas Co., Stout 1	¶½	....
HOLMES COUNTY—		
Ohio Fuel Gas Co., Clement 1	¶½ & 8	....
COSHOCTON COUNTY—		
Dugan-Sloan Oil & Gas Co., Adams 14	3	1055
SUMMITT COUNTY—		
F. A. Brendall & Co., Caslon 1	¶2½	4150
MEDINA COUNTY—		
Ohio Fuel Gas Co., Shive 2	¶½	....
FAIRFIELD COUNTY—		
Gas Producing Co. of Ohio, Kramer 1	*	2457
DELAWARE COUNTY—		
Lee Oil & Gas Co., Wooley Park 1	*	....

INDIANA

Company, Well and Location	Initial Production Bbls.	Depth
ADAMS COUNTY—		
George S. Lacknett, Parr 1	10	....
JAY COUNTY—		
Edington & Co., Edington 3	2	....

ILLINOIS

Company, Well and Location	Initial Production Bbls.	Depth
CRAWFORD COUNTY—		
O. B. Oil & Gas Co., Akeman 7	2	....
ST. CLAIR COUNTY—		
Eckert & Co., Keim 1	*	....

MICHIGAN

Company, Well and Location	Initial Production Bbls.	Depth
MIDLAND COUNTY—		
The Pure Oil Co., Holmes 1	1479	3541

TOW COMPLETIONS

NORTH LOUISIANA

Company, Well and Location	Initial Production Bbls.	Depth
BOSSIER PARISH—		
Texas Co., Wilkinson 14, 36-23-12	*	4058
Woodley Pet. Co., Harris 1, 14-17-12	¶4	2468
MOREHOUSE PARISH—		
Louisiana G&F Co., Crossett 26, 33-21-5e	¶2.8	2243
OUACHITA PARISH—		
Amalgamated Co., Cole B-1, 21-20-4e	¶6	2172
Greenwood Prod. Co., Burrell 1, 21-20-4e	¶23½	2135
Southern Carbon Co., Tensas Delta 13, 4-20-4e	¶8¾	2152
RICHLAND PARISH—		
Palmer Corp., Rhymes-Earle 2, 36-17-5e	¶29¼	2450
Rhymes-England 11, 12-16-5e	¶37	2450
Southern Carbon Co., Hallock B-1, 1-16-6e	¶51	2450
SABINE PARISH (Pleasant Hill)—		
Ark. Fuel Oil Co., Logan 14, 33-10-12	10	3230
UNION PARISH—		
Bahan & Bahan, Tanner 1, 29-22-4e	¶3	2177

ARKANSAS

Company, Well and Location	Initial Production Bbls.	Depth
UNION COUNTY (Smackover)—		
Root Ref. Co., Calloway 7, 4-16-15 (sec. comp.)	¶2	2295
Standard Oil Co. of La., Hardy-Murphy 23, 4-16-15 (sec. comp.)	40	2286

SOUTH LOUISIANA

Company, Well and Location	Initial Production Bbls.	Depth
HACKBERRY—		
Fred Book et al, Lacey 1, 27-12s-10w	*	3485
STARKS DOME—		
Gulf Ref. Co., Lutcher-Moore 25	25	1230
Adams Oil Co., Roderick 1, 21-9s-12w	*	1100
SWEET LAKE—		
Pure Oil Co., Yount-Lee 7	*	6381

TEXAS GULF COAST

Company, Well and Location	Initial Production Bbls.	Depth
BARBERS HILL—		
Sun Oil Co., Wilburn Fee 11	250	3450
Sinclair, McKinney Fee 4	15	5250
Humphreys Corp., Scott 2	*	7697
Yount-Lee Oil Co., Fisher 1, wo, plugged back	325	6700
The Texas Co., Wilburn 4	25	5150
DAMON MOUND—		
Layne et al, Wisdom 7	*	520
ESPERSON—		
Cranfill-Reynolds Co., Moores Bluff 5	125	2306
HUMBLE—		
Sun Oil Co., Bender 15	75	4225
E. M. Wilson, Wheeler-Pickens 5	125	1504
PETTUS—		
Al Buchanan, No. 1, Block 20	775	3900
Houston Oil Co., Townsite 1, Block 39, wet gas	15	3925
PIERCE JUNCTION—		
Warner-Quinlan Co., Minchen 1, n flank	400	4140
RACCOON BEND—		
Humble-Valley, Hugo Hagan 1, 2 mi s prod	*	5045
REFUGIO—		
Houston Oil Co., Jeter 1, Block 59	50	6455
Union Producing Co., Fannie Heard 10	800	3665
SARATOGA—		
Paggi Bros., McShane Fee 16	10	960

SOUTH TEXAS

Company, Well and Location	Initial Production Bbls.	Depth
BEXAR COUNTY—		
Swearingen Oil Co., Fee 7	9	710
DARST CREEK—		
Gulf Prod. Co., Thomas Dix 6	600	2556
Dix McKean 10	980	2630
Tadlock 3	480	2630
Tadlock 4	925	2624
Dix McKean 11	3000	2580
Humble O&R Co., Denman 15-A	1000	2588
Magnolia Pet. Co., Dix 9	500	2579
Rand Miller 4	450	2630
Dix 11	500	2580
The Texas Co., Dallas Wilson 9	600	2620
Parrish 2	850	2620
WEBB COUNTY—		
Magnolia Pet. Co., Benavides 1	12	1751
CHAPMAN FIELD—		
E. L. Chapman, Fuchs 6-A	200	1892
G. Stratton, J. C. Abbott 5	500	....
ZAPATA COUNTY—		
Allied Gas Co. and Allen & Morris, Guittierrez 9	60	1267
H. H. Coffield, S. Bustamente 1	¶15	1390
W. R. Shankle, Trevino 10	120	1251

TEXAS PANHANDLE

Company, Well and Location	Initial Production Bbls.	Depth
GRAY COUNTY—		
British-American Oil Co. & Shell Pet. Corp. Smith 3	570	3228
Danciger O&R Co., Catlin 1	30	3115
Bob Dunlop & Dawson, Morse 6-B	380	2700
Dye & Gillette, McConnell 1	500	3258
Magnolia Pet. Co., R. J. Sailor 1	200	3225
HUTCHINSON COUNTY—		
Timms et al, J. W. Moore 2	175	3120
Sinclair O&G Co., Johnson 1-B	*	2905
WHEELER COUNTY—		
Magnolia Pet. Co., Worley 2	¶3-10	2310
Murchison-Fain-McGaha, Brown 1	¶25	1835
Northern Texas Utilities Co., Williams-Laycock 2	¶28	1954

NORTH TEXAS

Company, Well and Location	Initial Production Bbls.	Depth
ARCHER COUNTY—		
Panhandle Ref. Co., Snider 1	*	802
CLAY COUNTY—		
Crosby Oil Co., Myers 2	*	1770
COOKE COUNTY—		
Deep Rock Oil Co.-Faith Oil Corp., Perkins 2	70	1330
MONTAGUE COUNTY—		
Lesh & McCall, Lemons 1-B	*	3059
THROCKMORTON COUNTY—		
Brihill Oil Corp., Conger 1	*	1430
Seitz-Comegys & Gulf Prod. Co., McKeichan 1	8	738
T. B. Slick et al, Reynolds 1	*	1540
WICHITA COUNTY—		
Rhoden & Benton, Cabe 1	*	1683
YOUNG COUNTY—		
Childers & McKinney, Leberman 1	*	846
C. E. Cloyes et al, Williamson 1	*	495
Featherstone et al, Olney Townsite 1	*	1091
F.H-E Oil Co., Jeffery 1	*	904
Godley Oil Co., Graham 4-A	*	4347
P. F. Gwynn et al, Jeffery 1	215	720
Geo. Mollenkoph et al, Larimore 5	*	730
E. R. Riggs et al, Kirkland 1	110	704
W. N. Scott et al, Keith 6	15	660
Sid Swink et al, Belknap 2	*	710
Young Bros. & Alexander, Remington 9	*	750

CENTRAL WEST TEXAS

Company, Well and Location	Initial Production Bbls.	Depth
BROWN COUNTY—		
Snellers et al, Crothers-Smith 1	¶1¼	1739
EASTLAND COUNTY—		
Belva Oil Co., Good 1-A	50	3650
PALO PINTO COUNTY—		
Lasater et al, T. P. Ry. fee 1	¶1¾	3503
SHACKELFORD COUNTY—		
Carter Dev. Co., Nail 1	*	1692
STEPHENS COUNTY—		
J. Price et al, Bruce 1	35	2122
Urban et al, Riddle 1	25	2036

WEST TEXAS

Company, Well and Location	Initial Production Bbls.	Depth
CRANE COUNTY—		
Magnolia Pet. Co., University-Hardwick 3	40	3087
CROCKETT COUNTY—		
McMan O&G Co.-Amerada Pet. Corp., Powell 2	150	2596
ECTOR COUNTY—		
Skelly Oil Co.-Amerada Pet. Corp., University 3-A	900	3614
LOVING COUNTY—		
The California Co., Reagan-McIlvain 4	650	4325
Geo. Henshaw et al, Reagan-McIlvain 1	200	4254
PECOS COUNTY—		
Charlesworth - Messenger Oil Co., Byrne 2	40	1398
UPTON COUNTY—		
Eppenauer Drlg. Co., Chaney 2-A	90	2454

CENTRAL EAST TEXAS

Company, Well and Location	Initial Production Bbls.	Depth
LIMESTONE COUNTY—		
Irish Oil Co., Wright 3	*	1455
VAN ZANDT COUNTY—		
Geo. Anderson-Fogelson et al, Mrs. W. A. York (strip lse.) 1	10,000	2932
Humble O&R Co., R. S. Blake 4	3500	2930
Pure Oil Co. A. D. Clark (4-ac) 1	2500	2927
O. L. & L. L. Swain (43.8-ac) 1	10,000	2955
A. R. Tunnell (101.2-ac) 4	5000	2937
Shell Pet. Corp., E. L. Fowler 7	6500	2970

NEW MEXICO

Company, Well and Location	Initial Production Bbls.	Depth
LEA COUNTY—		
Continental Oil Co., State 2-A	¶4½-3000	4184
Shell Pet. Corp., H. D. McKinley 2-B	23,900	4205
The Texas Co., H .D. McKinley 2	¶6¾-9800	4175
Tidal Oil Co., W. D. Grimes 2	¶9¼-21,400	4190

PERMITS GRANTED FOR NEW WELLS

ARKANSAS

OUACHITA COUNTY—Wilmer J. Thomas, Usery & Arnold 1, 200 ft n, 200 ft w se cor. nw¼, 36-15-15. A. D. Loyd Trustee, Dave Brown 1, 200 ft n, 200 ft e sw cor. se¼ sw¼, 23-15-18.

MILLER COUNTY—E. Tex. O. & G. Dev. Co., C. M. Hervey 1, 525 ft s, 350 ft w ne cor. nw¼ nw¼, 2-15-26.

UNION COUNTY—H. L. Hunt, Inc., W. R. Swilley 5, 330 ft w, 330 ft s ne cor. of sec. 28-16-16. Malloy & Company, Burns 7, 308 ft e, 200 ft n sw cor, nw¼ nw¼, 31-17-15. Wisinger & Ball, C. C. Goodwin 8, 175 ft n 150 ft e se cor. ne¼ nw¼ 6-18-15.

CALIFORNIA

Twenty-eight permits for new wells were granted during the past week, as compared with 24 during the previous week.

KANSAS

BARBER COUNTY—Barbara Oil Co. No. 1, Root, cw2 ne 25-33-13w.

COWLEY COUNTY—Hall et al's No. 1 Harvis, c nw sw 19-33-6e.

GREENWOOD COUNTY—York State Oil Co.'s No. 11 Westcott, cwl e2 nw 33-22-11e; Simmons and others No. 5 Harris, sw se nw 19-22-11e.

LYON COUNTY—Phillips Petroleum Co. et al's No. 1 Barr, sw nw nw 29-20-10e.

MARION COUNTY—Maydwell et al's No. 1 LaMaster, nw cor. 31-22-4e.

McPHERSON COUNTY—Lario Oil & Gas Co. and Shell Pet. Corp.'s No. 1 Miller, se cor. 1-20-2w; The Texas Co.'s No. 5 Munn, ne cor. 12-20-2w.

RAWLINS COUNTY—Danciger Oil & Refining Co. et al's No. 1, sw cor. 3-2-35w.

SEDGWICK COUNTY — Douglas Avenue Oil Corporation's No. 1 Bruner, cel se ne sw 24-27-1e; National Refining Co. and Spencer No. 2 Murdock, se cor. 18-27-2e; Benson and others No. 1 Carlton (owd) se cor. sw 24-28-1e.

SEWARD COUNTY — Liveral Oil & Gas Co.'s Boles 1, c n2 ne, 4-35-34w.

SUMNER COUNTY—Harris & Haun and others Duncan 1, c ne sw 15-35-2e.

LOUISIANA

BOSSIER PARISH—Louisiana Gas & Fuel Co., Shreveport, Jeter 3, 23 17n 12w, 660 ft n and 660 feet w of se cor of ne¼.

CADDO PARISH—Bayou State Oil Corp., Shreveport, D. Barr Sr. 4, 30 22n 15w, 575 ft s 350 ft w of ne cor se¼ of sw¼. The Texas Co., Shreveport, Caddo Levee Bd. 74, 33-21n-16w, 1600 ft s and 200 ft w of ne cor of Sec. The Texas Co., Shreveport, Caddo Levee Bd. 75, 33 21n 16w, 2450 ft s and 224 ft w of ne cor of Sec.

CALCASIEU PARISH—Gulf Refining Co. of Louisiana, Houston, Gardiner-Noble Gray 69, 33 10s 12w, 250 ft e and 50 ft s of nw cor ne¼ of se¼. Vinton Petroleum Co., Orange, Texas, Matilda Gray 20 Acres 10, 33 10s-12w, 505 ft n and 39 ft w of se cor sw¼ of ne¼.

CAMERON PARISH—The Pure Oil Co., Fort Worth, Young Lee Oil Co. 10, 12-13s-8w, 1924 ft n of s line and 2324 ft e of w line of Section. Yount-Lee Oil Co., Beaumont, State Land 36, 13-12s-10w, 615 ft w and 65 ft n of se cor of Sec. State Land 37, 13-12s-10w, 725 ft w and 40 ft n of se cor of Sec. State Land 38, 13-12s-10w, 825 ft w and 160 ft n of se cor of Sec.

DE SOTO PARISH—J. W. Clark, Inc., Shreveport, Mrs. Tidwell 1, 22-13n-14w, 300 ft s and 200 ft e of nw cor of Sec.

IBERVILLE PARISH—Gulf Refining Co., of Louisiana, Plaquemine, Wilbert's Myrtle Grove Plte. Co. 4, 52-9s-11e, 2749 ft s and 1141 ft w of nw cor of Sec.

RICHLAND PARISH—United Carbon Co., Monroe, J. A. Hemler 1, 5-15n-6e, 1980 ft s and 660 ft w of e¼ cor of Sec. Mrs. C. M. Noble Sr. 2, 15n-6e, 805 ft w and 1498 ft n ot cor. between Secs. 37, 7 and 8.

SABINE PARISH—Merritt, Tr., Many, Louisiana Long Leaf Lbr. Co. 1, 33-8n-11w, 660 ft e and 330 ft n of se cor. ne¼ of ne¼. Pelican Nat. Gas Co., Shreveport, Louistana Long Leaf Lbr. 5, 4-7n-11w, 200 ft s and 200 ft e of ne cor nw¼ of sw¼. Pelican Nat. Gas Co., Shreveport, Sabine Lbr. Co. 5, 11-7n-12w, 330 ft s and 330 ft e of nw cor nw¼ of ne ¼. The Texas Co., Shreveport, Sargent 1, 24-10n-12w, 365 ft e and 315 ft n of sw cor of se¼.

Tabulation and Comparison on page 56

ST. MARTIN PARISH—The Texas Co., Shreveport, St. Martin Ld. Co. Fee 5, 29-9s-7e, 1100 ft n and 1650 ft w of se cor of Sec.

TERREBONNE PARISH—The Texas Co., Shreveport, LL&E Co.-Bay St. Elaine 1, 19-22s-18e, 380 ft s and 310 ft w of ne cor of Sec.

OKLAHOMA

CARTER COUNTY—Lesh & McCall, No. 1 Hooks, se nw sw 14-1s-3w; Trevelyn Oil Co. No. 4, 24-1s-3w; Magnolia Petroleum Co., No. 4 Hooks, ne sw ne 24-1s-3w.

COAL COUNTY—Midwestern Oil & Gas Company No. 1, Gumm Bros. C sw nw 30-3n-10e.

CREEK COUNTY—C. G. Tibbens Oil and Gas Company, No. 3 Harry, nw cor ne nw 9-14-10e; Westfall Drilling Company. No. 1 Williams, sw cor sw nw ne 28-19-8e.

GARFIELD COUNTY—Champlin Refining Company No. 1 Wanbertt, ne cor nw 36-23-4w.

GRADY COUNTY—Badgett and Cooper No. 1 Miller, ne nw sw 25-4n-sw.

GRANT COUNTY—Consolidated Gas and Utility Company No. 1 Secatt, C se sw 35-28-3w (Owdd).

KAY COUNTY—McComas No. 1 Walker, cel se ne 1-28-1w.

MARCHALL COUNTY—Magnolia Petroleum Company No. 4 West Rutland Company, csl se se nw 30-5s-6e; F. W. Merrick No. 23 Null, sw cor ne 24-5s-5e.

MUSKOGEE COUNTY—T. B. Mathers No. 1 Springer, sw cor ne, 15-11-19e; E. Mills and others No. 1 McIntosh se cor ne nw 20-15-18e.

OKLAHOMA COUNTY—Indian Territory Illuminating Oil Co. No. 2 Lawton, se sw ne 11-11-8w; Indian Territory Illuminating Oil Co. No. 5 Lemmon, ne nw se 11-11-3w; Indian Territory Illuminating Oil Co. No. 4 Lemmon, se nw se 11-11-3w; Gant and Garvin No. 1 Twyford-Smitth ne cor sw nw sw 10-11-3w; Indian State Oil Company No. 1, se cor ne, 10-11-3w; Independent Oil & Gas Company No. 1 Higgens, cnl ne se sw 10-11-3w; Phillips Petroleum Company No. 1 Hercheck, sw cor se se nw 10-11-3w; Phillips Petroleum Company No. 1 Nunn, ne cor se ne nw 10-11-3w; Phillips Petroleum Company No. 1 Davis, del ne se nw 10-11-3w; R. O. Haubelt No. 1, ne cor sw nw nw 2-11-3w; R. A. McArthur No. 1 Armour nw cor sw nw nw 2-11-3w; Champlin Refining Company No. 2 Seal, nw cor sw sw 2-11-3w; Champlin Refining Company No. 1 Seal, nw cor ne sw sw 2-11-3w; Empire Oil & Refining Company No. 2, Gustine cwl sw nw ne 1-11-3w.

OKMULGEE COUNTY—Elm Oil Company No. 24 Rentie, se sw ne 13-14-14e; Independent Oil & Gas Company No. 1 Tucker, (OWD) sw cor se nw 9-15-14e.

OSAGE COUNTY—Indian Territory Illuminating Oil Company, No. 439, nw cor sw 36-24-8e; Western American Oil Company No. 16, sw ne sw 4-24-10e; Winona Oil Company No. 7, CNL se 20-29-9e.

PITTSBURG COUNTY — Central States Light & Power Company No. 2, Koehler, sw cor, 11-7-18e.

PONTOTOC COUNTY—Dixie Oil Company No. 1, Haynes "B," sw ne sw 32-5-5e.

POTTAWATOMIE COUNTY — Continental Oil Company No. 1, Walgreen, se cor sw 4-7-4e; Deep Rock Oil Corporation No. 3, Gibson sw cor ne 23-6-3e.

SEMINOLE COUNTY—C. B. Bunte and others No. 1 Coker, sw cor ne, 35-9-5e; Harris et al No. 2 Fleet sw cor ne 29-6-6e; Magnolia Petroleum Company No. 2 Billington, se cor nw 29-6-6e; Magnolia Petroleum Company No. 1 Hyde, nw sw se 29-6-6e; Sinclair Oil & Gas Company No. 1 Caesar, nw cor se 29-6-6e; Sinclair Oil & Gas Company No. 2 Caesar, sw nw se 29-6-6e.

STEPHENS COUNTY—Morrison and others No. 1 Hightower, nw cor sw ne 15-3s-5w; Smythe and others No. 1 House, se cor sw nw 29-2n-Sw.

TULSA COUNTY—O. H. Parkening and others No. 1, nw cor sw se sw 7-19-14e; Murray and others No. 1 McIntosh, c ne sw 17-19-14e; H. C. Deems and others No. 1 Grayson, nw cor se ne 18-19-14e.

WAGONER COUNTY—J. McCutcheon and others No. 3 Brown, CNL nw nw sw 36-16-17e; Brasheers and others No. 2, Barnett, ne cor nw nw sw 12-17-17e; R. L. North No. 1 Austin, se cor nw se 31-18-17e; Western Development and Electric Company No. 5, Barnett, cwl sw ne 24-18-17e.

TEXAS

ARCHER COUNTY — Electra-Archer Oil Co., Electra, F. C. Green, 50, 1, J. Levins sur, 150 ft from n and w lines. Panhandle Ref. Co., Wichita Falls, L. A. Snider, 220, 1, S 22, R. Toby sur, 750 ft from e and 150 ft from s line sec. Dr. C. W. Wallace, Wichita Falls, Fee, 167, 40, S. P. Ry sur, 1350 ft from n and 150 ft from e line. Maer Staniforth, Wichita Falls, E. E. Threet, 40, 1, S. J. Williams sur, 150 ft from n and e lines. H. P. Key, Olney, D. W. Fish, 80, 1, B 85, Club Ranch sur, 150 ft from s and e lines of w½. Hedrick-Camp Drilling Co., Wichita Falls, J. M. Inmon, 42, 1, S. McKimb sur, 150 ft from n and e lines.

AUSTIN COUNTY — Empire G&F Co., Wichita Falls, Kunze, 5½, 1, S. F. Austin sur, in the east corner of the lease.

BEE COUNTY—Humble O&R Co., Houston, M. M. McKinney, 8, G. A. Kerr sur, 372 ft w of No. 6.

BEXAR COUNTY—Russell & Moore, San Antonio, O. A. Mills, 450, 2, A. Navarro sur, 50 ft e of No. 1.

BROWN COUNTY—R. W. Farris, Brownwood, J. M. Fields, 100, 1, Sec. 33, T&NO sur, ne corner.

CALLAHAN COUNTY — Southern Petroleum Exploration Co., Abilene, W. H. Ross, 80, 1, Sec. 98, BBB&C sur, 220 ft from n and 660 ft from e line. Glengarry Oil Co., Cisco, W. P. West, 420, 1, B 2, W. H. Johnson sur, 800 ft e of center of w line. Geo. A. Perry, Baird, A. Cooke, 5, 1, Sec. 110, BBB&C sur, center J. E. Bedingfield, Cross Plains, J. W. Westerman, 80, 1, C. C. S. L. sur, 800 ft from w and 150 ft from s line, blk 77.

COLEMAN COUNTY—Midland Oil Co. et al, Fort Worth, A. J. Reeves, 80, 1, No. 631, H. Reeves sur, 1888 ft from w and 1926 ft from s line sur.

CALDWELL COUNTY—Anderson & Cameron, Fort Worth, R. B. Vickery, 100, 1, S. Damon sur, 750 ft from nw and 150 ft from ne line. A. M. Barber, 100, 1, S. Damon sur, 400 ft from nw and 150 ft from sw line. Jno. T. Callahan, San Antonio, W. H. Callihan, 176, 2, J. R. Miller sur, 2000 ft from s and 630 ft from w line.

CHAMBERS COUNTY—Yount-Lee Oil Co., Beaumont, Phillips, 4, Wm. Hodge sur, 930 ft from n and 2120 ft from w line sur. Sun Oil Co., Beaumont, Chambers County Agricultural Co., 50, 7, Wm. Bloodgood sur, 50 ft from n and e lines. Humphreys Corp., Houston, Kirby Pet., 72, A10, H. Griffith sur, 1276 ft from sw and 643 ft from se line.

CLAY COUNTY—Saxet Oil Co., Petrolia, Fee, S, 48, S 8, B 36, Joyce sur, 360 ft from n and 210 ft from w line.

COOKE COUNTY — Faith Oil Corp.,

Wichita Falls, R. M. Lawson, 210, 2, H. Nail sur, 450 ft from s and w lines.

CRANE COUNTY — Gulf Prod. Co., Fort Worth, J. T. McElroy, B, 610, S 216, B F, CCSD—RGNG sur, 1442 ft from n and 1650 ft from e line. J. T. McElroy, 609, 87, S 201, B F, CCSD& RGNG sur, 2762 ft from n and 990 ft from e line.

DE WITT COUNTY—Yorktown Oil & Gas Co., San Antonio, Wm. Von Roeder, 100, 1, WGH&U sur, 250 ft from nw and 750 ft from ne line.

DUVAL COUNTY — Humble O&R Co., Houston, Kohler, A, 49 A, J. G. Reynolds sur, 990 ft from s and 1155 ft from e line.

GUADALUPE COUNTY — Humble O&R Co., Houston, L. G. Denman, A, 300, 17, A. S. Emmett sur, 3788 ft from se cor and 450 ft from ne line; 18, same sur, 300 ft se of No. 17.Gulf Prod. Co., Houston, Posey-Baker, 71, 9, J. R. Robinson sur, 300 ft from sw and 480 ft from nw line.

GRAY COUNTY—Shamrock O&G Co., Amarillo, Dial, 80, 1, S 49, B 25, H&GN sur, 330 ft from s and e lines of nw¼. Empire G&F Co., Wichita Falls, J. W. Cantrell, 160, 1, S 136, B 3, I&GN sur, 330 ft from s and e lines of sec. Gulf Prod. Co., Fort Worth, R. B. Thompson, 160, 3, S 126, B 3, I&GN sur, 330 ft from n and e lines of sw¼. Operators Royalty Pool, Tulsa, W. W. Harrah, 120, 3, S 150, B 3, I&GN sur, 330 ft from s and e lines of ne¼ of ne ¼.

HARDIN COUNTY—Rio Bravo Oil Co., Houston, Fee, 158, C96A, J. F. Cotton sur, 120 ft s and 120 ft w of No. C83A.

HARRIS COUNTY — W. C. Turnbow, Houston, C. Miller, 411, 1, A. McCormick sur, 500 ft from e and 550 ft from s line.

HIDALGO COUNTY — Dayle Smith Oil Co., McAllen, 7000, 3, Van Riper sur, 330 ft from e and 50 ft from n line blk 35.

JEFFERSON COUNTY — Stella Oil Co., Beaumont, Orleans, ¼, 1, J. A. Veatch sur, 300 ft from w and 590 ft from s line blk 37. Unity Oil Co., Beaumont, McFaddin, 130, 102, P. Humphreys sur, 650 ft from nw and 1000 ft from sw line.

LOVING COUNTY—Rush, Anderson & Moore, Big Spring, J. J. Wheat, 600, 1, S 77, B 1, W&NW sur, 330 ft from s and w lines of sec. California Co., Colorado, Regan, 480, 6, S 84, B 1, W&NW sur, 330 ft from s and w lines.

NUECES COUNTY—W. L. Pearson Properties, Inc., Corpus Christi, O. Askey, 234, 1, Sec. 839, 3500 ft from n and 330 ft from e line.

OLDHAM COUNTY—Amalgamated German American O&G Corp., Lefors, Norton, 1, S 12, Rge. 2E, 330 ft from s and e lines of sec.

PECOS COUNTY—Dixie Oil Co., McCamey, J. H. Tippett, 4, S 539, B 194, GC&SF sur, 150 ft from s and e lines.

REFUGIO COUNTY — Royal Prod. Co., Houston, Hornburg, 2½, 1, Twste., center of blk. 32.

SHACKELFORD COUNTY—S. A. Thompson, Fort Worth, H. L. Griffith, 20, 1, S 37, L. A. L. sur, 150 ft from e and 600 ft from s line. Hix & Hubbard, Dallas, Dawson, 320, 1 S 139, E. T. Ry. sur, 660 ft from s and e lines of ne¼.

STEPHENS COUNTY — Southern Petroleum Exploration Co., Abilene, A. M. Drummond, 320, 1, S 114, TE&L sur, 1000 ft from w and 780 ft from s line.

TAYLOR COUNTY—Gibson, Adams, Ferguson, Abilene, J. L. Lowe, 190, 2, G. C. S. L. sur, 293 ft from n and 680 ft from w line.

TOM GREEN COUNTY—C. G. Cromwell, San Angelo, J. M. Nutt, 100, 3, S 6, GCSL sur, 1162 ft from w and 904 ft from n line sec.

VAN ZANDT COUNTY—Pure Oil Co., Fort Worth, M. F. Shirley, 38, 2, Jno. Walling sur, 163 ft w and 99 ft s of line. D. O. Mayo, 29, 1, W. N. Black sur, 200 ft from n and w lines. A. G. Maxfield, 107, 2, N. C. S. L. sur, 250 ft from s and w lines.

WICHITA COUNTY—American Ref. Properties, Wichita Falls, L. Morgan, 2, 2, 818, E. Stanley sur, ne c. J. C. Cunningham, Graham, Goetze, 41, 7, GC&SF sur No. 2, 50 ft w of No. 5. A. T. Russell, Wichita Falls, Sharp, 35, 3, AB&M sur, Sec. 12, 450 ft from n and 1050 ft from w line. F. W. Boardman et al, Wichita Falls, J. L. Powell, 50, 1, L. P. Dikes sur, 160 ft w of center of e line.

WASHINGTON COUNTY — Sun Oil Co., Beaumont, A. Freeman, 106, 1, J. F. Perry sur, 150 ft from se and 1003 ft from sw line.

WARD COUNTY—Gulf Prod. Co., Fort Worth, G. W. O'Brien, 640, 15, S 6, B F, G&MMBA sur, 3000 ft from w and 330 ft from s line sec.

WHEELER COUNTY — Northern Texas Utilities Co., Wichita Falls, A. J. Laycock, 2, S 55, B 27, H&GN sur, 330 ft from s and w lines of sw¼ sw ¼; 3, same sur, 660 ft from e and 610 ft from s line se¼ sw¼.

WHARTON COUNTY—H. H. Givan, Houston, A. G. Hudgins, 59, 1, T. P. Phillips sur, 400 ft from e and 270 ft from s line.

WEBB COUNTY—O. W. Killam, Laredo, A. M. Bruni, 320, 3, S 835, 150 ft from s and w lines of n½.

YOUNG COUNTY—J. J. Moran, Wichita Falls, W. B. Howard, 100, 1, 3401, TE&L sur, 1151 ft from n and 803 ft from w line. F. M. Taylor et al, Newcastle, J. O. Lewis, 200, 1, 717, TE&L sur, 1350 ft from w and 750 ft from s line sec. H. D. Wilcox et al, Graham, A. Furr, 160, 1, 338, TE&L sur, 150 ft from s and w lines of se¼. Jacob Oil & Gas Co., Graham, Finch, 10, 1, 38, TE&L sur, 150 ft from n and 250 ft from e line. F. E. Butler et al, Olney, R. Bullock, 80, 1, McLennan sur, 1062 ft, from n and 450 ft from w line. F.H.E. Oil Co., Sherman, J. K. Jeffery, 120, 1, 54, TE&L sur, 150ft from s and e lines. Young Bros. & Alexander, Fort Worth, E. M. Remington, 40, 9, 2248, TE&L sur, 150 ft from s and w lines. Primrose Ref. Co. & Fullerton, Wichita Falls, A. E. Logan, 20, 1, 2251, TE&L sur, 150 ft from n and 450 ft from w line. J. A. Bearman et al, Cisco, Baldwin, 40, 1, S 20, TE&L sur, 1083 ft from n and 783 ft from e line sec. J. R. Fowler et al, Olney, E. Hill, 44, 1C, 195, TE&Lsur, 150 ft from e and 750 ft from s line. Lloyd Oil Corp., Fort Worth, J. I. Steen, 100, 1, 1936, TE&L sur, 150 ft from n and w lines. C. E. Scott, Cisco, G. McCluer, 60, 1, 953, TE&L sur, 150 ft from s and e lines. Panhandle Ref. Co., Wichita Falls, J. F. Larimore, 80, 1A, 24, 253, TE&L sur, 255 ft from w and 150 ft from s line nw¼. Arkansas Fuel Oil Co., Wichita Falls, J. W. Bullock, 160, 1, 344, TE&L sur, 597 ft from n and 933 ft from e line sec. Wooten & Reed et al, Graham, J.A. Horton, 132, 2, 1906, TE&L sur, 1050 ft from s and 750 ft from w line sec.

ZAPATA COUNTY—J. H. Winch, Laredo, A. Bustamente, 40, 1, No. 5, Blk 7, Fansler sur, 150 ft from nw and 450 ft from ne line. O. W. Killam, Laredo, E. Cuellar, 431, 30B, No. 277, 1250 ft from sw and 360 ft from n of No. 26. J. J. O'Horn, Laredo, S. Benavides, 40, 1, Blk. 10, Fensler-Ville sur, 150 ft from n and e lines.

Start Work on Four-inch Line Outlet For Duval County Well

Houston.—Magnolia Pipe Line Company began construction October 4 on a four-inch line to provide pipe line connection for Duval County Ranch Company 1, the wildcat oil producer of Vacuum Oil Company and S. R. C. Oil Company (T. B. Slick interests) in the northwest portion of Duval County. The line will extend southeasterly approximately eight miles to the Schoolfield-O'Byrne pool, to connect there with Magnolia Pipe Line Company's established system.

Prior to the arrangement between the owners of the wildcat discovery well and Magnolia Pipe Line Company, Humble Pipe Line Company, it is reported, tentatively considered making a bid for this connection. The latter company has a line into the Kohler pool, Duval County, operated by Humble Oil & Refining Company, and the Vacuum-S. R. C. Oil Company wildcat is about 20 miles north of that field.

There is limited storage available for the wildcat producer, and it is temporarily shut in. But on a recent test it pumped and flowed at the rate of 350 barrels daily, and it is believed that it will produce steadily at about that rate. The production tests 20.6 corrected gravity. Total depth of the well is 1736 feet; top of the sand is at 1730 feet; nine-inch casing is cemented at 1724 feet; and there is one joint of eight-inch perforated liner at the bottom of the hole.

Location of this discovery well is 2600 feet north and 475 feet west of the southwest corner of Section 297 in Section 293. Vacuum Oil Company had 66,000 acres in its original block in this area, and gave S. R. C. Oil Company an undivided half interest in 10,000 acres to drill some free wells.

Raccoon Bend Well Abandoned

Houston.—Humble Oil & Refining Company and Valley Oil Corporation have abandoned a wildcat test, Fritz Lamp 1, located 3½ miles south of production in the Raccoon Bend field in the Thomas Boatright Survey, Austin County. The bottom of the hole was in hard sand at 5411 feet. That is the deepest test drilled in the district.

Another wildcat, Hugo Hagan 1, is being drilled by the above interests in the south part of the William Harvey Survey, two miles south of Raccoon Bend production. Early this week it was in hard sand rock at 4800 feet.

Activity at Raccoon Bend is being directed now principally to further development of the eastern edge of the field in and adjacent to the Brazos River. Duncan State Land 2, which is 1800 feet north of No. 1 and a direct west offset to Hardy B-2, both of the latter being producers, is drilling sticky shale at 1690 feet. Hardy B-2, located on the east bank of the river, in Waller County, is the most easterly producer in the field. A derrick has been erected for Hardy B-3 in the J. G. Groce League Two, 600 feet east and 270 feet north of Hardy B-2. Sherrod 3, on the bank of the river, has foundation for a derrick completed on top of piling.

WILDCATS FROM ALL SECTIONS

WEST TEXAS

ANDREWS COUNTY—
Maer-Martin & Kell, Meadors 1.... * 4501
WARD COUNTY—
Atlantic Oil Prod. Co.-California Co., Thomas 1 ..... * 2974

ANDREWS COUNTY — Fuhrman Pet. Corp.'s W. T. Ford 1, elev 3186 ft, cased off 30 mil ft gas 4062-68 ft, flowing 120 bbls oil daily, dr lime 4290-4540 ft.

BREWSTER COUNTY—Trans-Pecos O&G Co.'s Jones 1, elev 3073 ft, sd 2510 ft.

CONCHO COUNTY—W. C. Beesley et al's Waring 1, sp and sd. A. W. Turner et al's Brosig 1, sd 1520 ft.

CRANE COUNTY—Cranfill Bros. Oil Co.-Atlantic & Disney-Gholson's J. T. Muir 1, elev 2499 ft, top salt 485 ft, top white lime 2330 ft, dr 2600 ft. Cranfill Bros. Oil Co. & Gulf Prod. Co.'s Tubbs 1, elev 2526 ft, salt 505 to 1400 ft, top brown lime 1415 ft, top white lime 2455 ft, flowed 808 bbls 39.3 gravity oil and 3 mil ft sulphur gas first 20 hrs from lime 4303-10 ft, sd storage.

CROCKETT COUNTY—Magnolia Pet. Co.'s A. C. Hoover 2, elev 2521 ft, top salt 865 ft, swabbing 4½ bbls 31 gravity oil daily after shot 2038-56 ft; Hoover 3, lcn.

CULBERSON COUNTY — Grisham-Hunter Corp.'s W. D. Garren 2, sd 1520 ft. W. L. Kornrumpf et al's Garren 1, sd 1025 ft.

ECTOR COUNTY—C. P. Davis et al's T. G. Hendrick 1, elev 2878 ft, top salt 1640 ft, top brown lime 4470 ft, sd for cas 4472 ft. H. F. Wurtz et al's Ibbetson 1, elev 2840 ft, top salt 865 ft, sd with bad hole 2375 ft.

EDWARDS COUNTY—Phillips Pet. Co.'s Holman 2, sd repairs 6005 ft.

FISHER COUNTY — Condor Pet. Co.'s Wilson 1, rig. Cranfill-Reynolds Co.'s Flannigan 2, sd 3130 ft; Willingham 3, dr 2625 ft. The Texas Co.'s Dan Stephens 2-A, rotary rig; M. Teagarden 2-B, rig.

GARZA COUNTY—Pandem Oil Corp. et al's K. Stoker 2, dr 2310 ft.

GLASSCOCK COUNTY—Ed. Timberlake et al's Meek 1, sd 2965 ft. World Oil Co.'s McDowell 3-C, sd 660 ft.

TOM GREEN COUNTY—Belding & Dutton's Norsworthy 1, sd 765 ft. Mintex Oil Co.'s Campbell 1, sd 1710 ft. Phillips Pet. Co. et al's Jennings-Gulden 1, elev 2016 ft, dr 4080 ft.

HOWARD COUNTY—Greene Prod. Co. & Getty Pet. Corp.'s Denman 1, elev 2280 ft, top lime 1700 ft, testing with 2300 ft oil in hole at 2615-2703 ft; Snyder 1, elev 2314 ft, cem cas and stdz 1886 ft.

HUDSPETH COUNTY—Geo. R. Theison et al's University 1, sp and sd.

IRION COUNTY — Central Oil Co.'s H. Horney 2, sp and sd. Carl Cromwell et al's Tankersley 1, elev 2520 ft, sd 1712 ft. Straughn & Texannati Oil Co.'s Tankersley 1, ur 945 ft. R. E. Webb et al's Williams 1, sp and sd. P. H. Williams et al's Noelke 1, dr hfw 2005 ft.

JONES COUNTY—McBest et al's Roberts 1, dr 710 ft. C. R. Pope et al's Swann 1, dr 1795 ft.

LOVING COUNTY — Arkansas Fuel Oil Co.'s W. W. Dean 1, top salt 775 ft, dr 1880 ft. The California Co.'s Reagan-McIlvain 3, elev 2687 ft, top salt 726 ft, dr 4140 ft; Reagan 5 and 6, rigs. A. R. Eppenauer Drlg. Co. et al's Allen 1-A, dr 840 ft. Lewis & Slagel Drlg. Co.'s Cartwright 1, lcn. Miller-Burge & Healy's Chapman 1, top salt 750 ft, dr 3540 ft. Phillips Pet. Co.'s Wheat 2, dr 630 ft. Rush-Anderson & Moor's Jim Wheat 1, dk. Lee O. White et al's Russell 1, top salt 750 ft, dr 4015 ft.

MENARD COUNTY—W. C. Barnett et al's Callan 3, ur 1305 ft; Callan 4, lcn. L. G. Priest et al's J. P. Sorells 1, elev 2279 ft, sd 2520 ft.

MIDLAND COUNTY—Kirwin et al's Mathena 1, rig.

MITCHELL COUNTY — Lewis & Slagel's A. M. Bell 1, rig.

PECOS COUNTY—Barnes et al's Sanford 1, elev 2518 ft, co with hfo 1350-85 ft. J. R. Bell et al's H. J. Eaton 1, lcn; Scharff-Blackman 1, machine. Charlesworth-Messenger Oil Co.'s Butz 1, sd 740 ft. E. L. Chapman et al's Streety 1, elev 2653 ft, dr by tools 2210 ft. Crosby Prod. & Royalty Corp.'s Cordova 1, dr 2845 ft. Cury & Eakin's Pecos Valley 1, elev 2440 ft, top salt 1200 ft, sd flow 15 bbls daily 1577-1629 ft. C. L. Dittman Drlg. Co. et al's H. J. Eaton 1, sd 1230 ft; Eaton 2, lcn; Eaton (Sec. 37) 1, lcn; Jackson 1, lcn. Humble O&R Co.'s Kokernot 1, elev 3593 ft, top salt 2713 ft, top black lime 3981 ft, sd for heavier drlg eqpt. in black shale 5695 ft; Mrs. C. L. Thompson 1-B, elev 3061 ft, cased off 200,000 bbls sulphur water 1689 ft, trace oil 1740-50 ft, dr anhydrite 1930 ft. Lockhart & Co.'s University 1, top salt 770 ft, dr 110 ft. Magnolia Pet. Co.'s Byrne 1, swab 15 bbls daily after shot 1349-85 ft. J. R. Miller et al's Bennett 1, sd 1700 ft. J. D. O'Mara et al's Bennett 1, sd 1230 ft. O. J. Perren et al's Eaton 2, elev 2437 ft, fsh 1765 ft. Pure Oil Co.'s Harrison 1, elev 3495 ft, dr lime and anhydrite 3156 ft. Rio Grande Oil Co.'s Webb 1, sd 1245 ft. Riser & White's Riser 1, sd 405 ft. Schelling & Slaughter's Yates 1, sp and sd. Sides & Cloyd's Blackstone-Slaughter 1, dr by junk 2330 ft. N. E. Tanner-Cromwell & M. M. Rowan's University 1, pumping 50 bbls oil and lots water after shot 80 qts at 1786-1815 ft, td 2156 ft. Williams & Moran's Heiner-State 1, dr 455 ft.

REAGAN COUNTY — Big Lake Oil Co.'s University 179, dr by bailer at 3205 ft, td 4003 ft; University 5-C, cem 9⅝ cas with 1000 sacks at 5495 ft, td 5520 ft. Group One Oil Corp. (Conoco's) University 4-B, dr hard shale 4650 ft.

REEVES COUNTY—Biggs & Smith's Cherokee 1, spd and sd. California Co.'s Klch 1, elev 2798 ft, dr gray lime 3642 ft. May & Milton's Ellis 1, ur 1435 ft. Lee O. White et al's Hersheusen 1, elev 3244 ft, top salt 2670 ft, sd 4415 ft.

RUNNELS COUNTY — Boyce & Lamar's Lange 1, elev 1844 ft, sd 2643 ft. Chas. Dutton et al's G. W. Dean 1, running cas td 1330 ft.

SCHLEICHER COUNTY — Delmar Oil Co.'s O'Harow 1, elev 2421 ft, ur 5560 ft. Eastland Oil Co.'s Unit Plan's Tisdale 1, lcn. Munger-Wilson Oil Co.'s Page 1, elev 2270 ft, sd 5053 ft. Paul Teas & Walter Gant's Allison 1, dr 3910 ft. J. D. Wesner et al's R. E. Ratliff 1, sd 750 ft.

SCURRY COUNTY—Camp Springs O&R Co.'s Strayhorn 1, cem cave 875 ft. D. H. Byrd & H. A. Harmon's Murphy 1, elev 2298 ft, top salt 775 ft, top lime 1507 ft, pumped 55 bbls initial after two shots, td 3501 ft. Mid-Kansas O&G Co.-Vacuum Oil Co.'s Peckham 1, elev 2155 ft, set 8¼-inch cas 4140 ft. R. B. Pender O&G Co.'s Davis 1, sd 4970 ft. Seifert & Dibble's Blackburn 1, spd and sd.

STERLING COUNTY—W. C. Beesley et al's W. B. Brown 1, spd and sd.

TAYLOR COUNTY — Adams-Ferguson & Hobbs' Lowe 2, dr 655 ft. Eastland Oil Co. et al's Hunter 2, rig. Gibson & Johnson et al's Bingham 1, elev 1919 ft, sd 2501 ft. H. B. Herring-Hucony Gas Co. et al's Richie 1, sd hfw 2390-92 ft. J. B. Jameson et al's Webb 1, elev 1905 ft, sd repairs 6180 ft. Sanger et al's Abilene fee 1, dr 1010 ft. Sanger O&R Co. et al's Osborn 1, rig.

TERRELL COUNTY—Big Bend Oil Corp. et al's Bassett 1, elev 2396 ft, sd 2355 ft. Mid-Kansas O&G Co.'s Good 1, elev 2405 ft, fsh 5226 ft.

VAL VERDE COUNTY—O. O. Owens et al's Mills 1, elev 2130 ft, co 6760 ft. Phantom Oil Co.'s Ingram 1, sd 3035 ft.

UPTON COUNTY—Gulf Prod. Co.'s King 1, trace oil 2440 ft, cem 7-inch cas 2595 ft. Penn Oil Co. & Shell Pet. Corp.'s T. M. Anderson 1, top salt 1335 ft, dr 2450 ft.

WARD COUNTY — Atlantic & The California Co.'s S. R. Allen 1, cellar. Gulf Prod. Co.'s Hutchings 4, elev 2639 ft, flowing 40 bbls oil daily, dr 2565-2900 ft; Hutchings 5, elev 2679 ft, top salt 1205 ft, top lime 2316 ft, flowing 190 bbls 2555-2789 ft; O'Brien 15, dr 1115 ft. Magnolia Pet. Co.'s Sealy 1, top salt 2090 ft, dr 2705 ft. R. F. Owen et al's Johnson 1, elev 2499 ft, sd 1200 ft. Sid Richardson-Kelsey & Magnolia's O'Brien 5, sp and sd. Shipley Oil Corp.'s Monroe 1-A, elev 2655 ft, top salt 2485 ft, sd 2520 ft. Texas Pacific Coal & Oil Co.'s M. Barker 1, top salt 1035 ft, top lime 2135 ft, flowing 60 bbls oil by heads 2256-2329 ft.

WINKLER COUNTY — Champlin-Winkler Oil Corp. (Wilson's) Campbell 1, sd 4639 ft. Empire Gas & Fuel Co.'s Daugherty 1-C, dr 1760 ft. Magnolia Pet. Co.'s Bashara 1, rig; Scarborough 3, top salt 1225 ft, dr 1645 ft. Prairie O&G Co.'s L. E. Johnson 1, top salt 1565 ft, cem 8¼-inch cas at 2655 ft, td 2767 ft. Jeffery et al's Brown 2, sd 3120 ft. L. C. Turman et al's Daugherty 1, top salt 1440 ft, dr 2485 ft.

ABBREVIATIONS

NOTE—The following is the explanation of abbreviations, signs, etc., used in completion and wildcat reports: *—dry hole, abandoned well; ‡—salt water; †—junked and abandoned; ¶—million feet of gas; abn—abandoned; bbls—barrels; b.s.—basic sediment; cas—casing; co—cleaning out; dk—derick; dr—drilling; fsh—fishing; ft—feet; in.—inches; lcn—location; m—milling; n, s, e, w—north, south, east, west; r—reaming; sd—shut down; sdtr—sidetracking; sp—spudding; sr — straight reaming; std—standardizing; sw—salt water; td—total depth; ur—underreaming; wo—workover; wosr—waiting on standard rig.

CENTRAL EAST TEXAS

BOWIE COUNTY—
Lee Timberlake et al, J. Tidwell 1 * 3008
RUSK COUNTY—
C. M. Joiner et al, Daisy Bradford 3 500 3592

BOWIE COUNTY—Joe Burham et al's G. W. Burnett 1, M. H. Janes sur, dr 1555 ft.

CAMP COUNTY—McDonald Bros. & Atlantic Oil Prod. Co.'s B. D. Tillery 1, J. H. Murphy sur, dr 255 ft.

CASS COUNTY—Phillips Pet. Co.'s J. R. Olds 1, rig.

CHEROKEE COUNTY — Berry & Hale's Jeff Jones 1, dk. D. H. Byrd et al's W. H. Felder 1, Brooks Williams sur, sd 600 ft. Arkansas Fuel Oil Co.'s N. A. Deaton 1, lcn.

DELTA COUNTY—Delta County Dev. Co. (Geo. Kean & J. B. Evan's) M. E. Hays 1, J. B. Anderson sur, elev 503 ft, testing show oil 3091 ft.

ELLIS COUNTY—G. C. Foster & S. C. Richardson's Moise-Cerf 1, LaPena sur, elev 440 ft, sd 2187 ft. E. M. Rogers et al's J. L. Winn 1, O. Wheeler sur, dr 955 ft. The Triangle Corp.'s W. B. Hale 1, B. Smith sur, Trinity sand 2740 to 3040 ft, dr 3162 ft.

FANNIN COUNTY—Ed. V. Parsons et al's Morgan 1, J. E. English sur, elev 668 ft, lowering cas 3423 ft.

FRANKLIN COUNTY — Harper-Byers et al's A. J. Laws 1, D. G. Rogers sur, dr 310 ft.

HENDERSON COUNTY—H. B. Ashburn et al's T. E. Terry 1, Arron York sur, elev 397 ft, top Pecan chalk 2810 or 2830 ft, sd 2960 ft. E. L. Chapman et al's Cade 2, Simon Weiss sur, rigging up for 900-ft gas test. Geo. L. Pace et al's S. Anthony 1, J. M. Betram sur, elev 410 ft, Pecan chalk 2252-2361 ft, sd in chalk 3250 ft. Texas-State Oil Co.-R. H. Dearing & Sons et al's T. H. Skinney (20-ac) 1, J. Hinshaw sur, sp and sd.

HOPKINS COUNTY — Okla-Tex Royalty Corp.'s Hamilton-Mollie Hess 1, Jas. Gahagan sur, hard Pecan chalk 2050 to 2145 ft, dr 2185 ft.

HUNT COUNTY — Mrs. Mamie S. Hammonds-F. B. Branson & C. A. Kelsey's J. S. West 1, Jas. Rhodes sur, elev 505 ft, Pecan chalk 1310-1365 ft, Austin chalk 1415-1815 ft, sd hfw 3250 ft. R. J. Worthington Oil & Dev. Co.'s W. H. Adams 1, lcn.

KAUFMAN COUNTY—Otto R. Winter &

Coastline Explorations, Inc.'s, John Barow 1, R. A. Terrell sur, elev 538 ft, Austin chalk 2283-2667 ft, top Woodbine 3194 ft, fsh drill stem 3314 ft.

LIMESTONE COUNTY—Haley-Heemann's Wilkes 1, J. Breeding sur, elev 421 ft, sd 1444 ft.

NAVARRO COUNTY—Young et al's J. H. Farmer 1, Robt. Finley sur, sd 960 ft. L. G. Priest et al's Henry Albritton 1, H&TC sur, sp and sd.

RAINS COUNTY—Everett & Morrison's F. Franklin 1, J. Christian sur, sp and sd.

RED RIVER COUNTY—E. L. Chapman et al's Morris-Guest 1, S. Larkin sur, sd 1505 ft.

RUSK COUNTY—Ed. W. Bateman et al's L. D. Crim 1, E. Sevier sur, dk. Alford et al's W. L. Wallas-Thrash 1, R. H. Pinney sur, lcn. Benedum-Trees Oil Co. & Clem S. Clark et al's Mrs. M. R. McCafflin 1, E. Blackburn sur, elev 406 ft, Pecan chalk 2190-2487 ft, tested salt water 2686-2714 ft, coring 2720 ft. Frank Foster et al's C. D. Ashby (75-ac) 1, Juan Ximinez sur, dk. Abe Goodman et al's L. M. Mays 1, W. Brown sur, lcn. C. M. Joiner et al's Daisy Bradford 3, Juan Ximinez sur, elev 390 ft, Pecan chalk 2590-2744 ft, base Austin chalk 3490 ft, flowing 500 bbls 38.6 gravity oil via tubing 3536-3592 ft. Moss et al's Mathews 1, top Pecan chalk 2296 ft, sd 2330 ft. C. Rosenfield et al's E. L. Pinkston 1, M. V. Pena sur, elev 363 ft, dr 1480 ft.

SMITH COUNTY—Owen-Sloan Oil Co. & R. H. Davis' J. H. Starnes 1, J. W. Allen sur, elev 417 ft, top Pecan chalk 2738 ft, installing heavy rig to deepen from 3002 to 4300 ft. T. B. Slick Estate & J. G. Kugle, Jr., et al's M. Freeman 1, A. J. Lagrone sur, elev 498 ft, top Pecan chalk 2955 ft, co at 3509 ft to deepen to 4000 ft. Sun Oil Co.'s Oscar McGehee 1, Thomas Quevedo sur, elev 428 ft, coring 1420 ft. Thayer & Rogers' Dr. Willingham 1, Jacob Herrin sur, dr 1500 ft.

VAN ZANDT COUNTY—Bethel Oil Co.'s P. Smith 1, M. Neal sur, elev 435 ft, Pecan chalk 2555-2790 ft, Austin chalk 3865-4009 ft, sd 4603 ft. D. H. Byrd et al's C. H. Morris 1, P. Piles sur, elev 570 ft, top Pecan chalk 3258 ft, dr 3336 ft. E. L. Chapman et al's Chas. T. Wolverton 1, Wm. James sur, elev 515 ft, Pecan chalk 2810-3106 ft, base Austin chalk 3409 ft,top Woodbine 3996 ft, dr sandy shale 4010 ft. Hartt Pet. Co.'s M. L. Cox 1, A. C. Nugent sur, ready to spud. W. B. Powell et al's Kellam 1, Jessie Russell Sur., Abst. 703, lcn. L. G. Priest et al's Blanche Blewett 1, E. Porter sur, elev 610 ft, Pecan chalk 2795-2957 ft, set 6⅝ cas 2800 ft, td 3200 ft.

VAN FIELD—Broderick & Calvert's M. F. Shirley (2.07-ac strip) 2, lcn. E. L. Chapman et al's Clark 1, dk blown down. Cranfill & Germany, Inc.'s, L. L. Swain (4½-ac strip) 1, sp and sd by injunction. Hartt Pet. Co.'s Swain (2.3-ac strip) 1, rig. Helms et al's C. E. Bogue 1, Marshall University sur, elev 461 ft, sd 1670 ft. Humble O&R Co.'s R. S. Blake 5 and 6, rigs; Mrs. E. E. Carroll 2, elev 473 ft, no Pecan chalk, Austin chalk 2396 to 2530 ft, dr shale 2550 ft; Carroll 3, rig; A. J. Fowler 1, rig. Imperator Oil Corp.'s Carter (Strip) 2, dk. Imperator & Paul Vitek's G. J. Luther (3.01-ac strip) 1, elev 447 ft, Pecan chalk 1653 ft, Austin chalk 2630-2810 ft, fsh with show oil 2895 ft. Roy Jenkins et al's M. E. Davis 1, installing standard rig to pump, td 3031 ft. Kraft & Kelsey's Wylie Enas (30.6-ac strip) 1, J. Prado sur, Pecan chalk 1645-1770 ft, dr 2010 ft. Pure Oil Co.'s A. D. Clark (42-ac) 1, dk; W. H. Cook 1, top Austin chalk 2283 ft, cem cas 2646 ft; J. F. Crim (40-ac) 1, put on pump, td 2981 ft; Crim 2, cem cas 2711 ft, td 2738 ft; V. T. Davis 1, dk; Mertie Elliott 1, cem cas 308 ft; A. G. Maxfield 2, dr 1440 ft; D. O. Mayo 1, dr shale 2060 ft; P. E. Neills 1, top Austin chalk 2490 ft, re-set tubing, td 2928 ft; M. F. Shirley (38-ac) 2, reaming 2260 ft; F. B. Smith (80-ac) 1, top chalk 2479 ft, coring 2911 ft; J. C. Stewart (44-ac) 1, top Pecan chalk 1535 ft, dr 2650 ft; O. L. Swain (40-ac) 2, dr chalk 2581 ft; Swain Bros. (43.8-ac) 2, rig; J. T. Thompson 9, top Austin chalk 2303 ft, cem cas 2578 ft; A. R. Tunnell 3, top Austin chalk 2375 ft, cem cas 2682 ft; E. B. Tunnell (4.23-ac) 3, rig; R. L. Wells 5, dk; Wells 11, cem cas 2558 ft; W. A. York 2, cem cas 2305 ft. Shell Pet. Corp.'s J. T. Taylor 2, top Austin chalk 2346 ft, dr 2440 ft; Taylor 3, Austin chalk 2350-2528 ft, dr 2610 ft. Sun Oil Co.'s I. W. Thompson 3, dk. The Texas Co.'s R. A. Tunnell (100-ac) 2 and 3, dks. Ventex Oil Co. (Paul Vitek's) L. A. Smith (2-ac strip) 1, wooden dk.

WOOD COUNTY—Big Indian Oil & Dev. Co. & Tidal Oil Co.'s R. J. King 1, Wm. Barnhill sur, elev 525 ft, Pecan chalk 2636-2875 ft, coring and ready to abn 4874 ft. Wood County Dev. Co.'s Ricks 1, Daniel Fuller sur, sd 1000 ft.

SOUTH TEXAS

ATASCOSA COUNTY—Frontier Oil Co.'s Boyton 2, td 2610 ft, dr.

BASTROP COUNTY—Champion Bros.' H. B. Smith 1, 1 mile w of Elgin, td abt 1975 ft, casing set at 1900 ft on top of cavity in chalk, showed oil to 1941 ft, being drilled to Edwards lime. Charles Long's McWilliams 1, offsets L. I. Dodwell No. 1, Brundige well, spudded.

BEE COUNTY—Al Buchanan's Pettus town 1, center of blk 20, td 3900 ft, top of pay 3870 ft, set 6⅝-inch casing at 3868 ft, completed, prod 800 bbls on choke, (Pettus pool); Townsite 8, center blk 8 Pettus townsite pool, moving on lcn. Batex Prod. Co.'s Barnett Heirs 2, s offset to No. 3 McKinney of Cosden and n of Sun No. 1 Barnett, td 3934 ft, plugged back to 3888 ft, salt water sand at 3894 to 3934 ft, top of new sand 3805 ft, drilled deeper from 3649-3660 ft, which showed for only small producer, 6⅝-inch casing set at 3645 ft, preparing to complete, (Cosden pool). Cosden Oil Co.'s Stoltfus 1, Chittim Miller ranch in Jose Maria Uranga sur, td 4050 ft, coring, top of Jackson 2818 ft. Humble's McKinney 8, w of No. 7 McKinney and 150 ft s of center of s line of Pettus townsite blk 21, mov on. Hulburt et al's Chestnut 1, 12 miles from Skidmore, td 1500 ft, sd. Humble, Hulburt et al's Wood 1, five miles se of Beeville, td 5074 ft, bracing derrick preparatory to set csg. Houston Oil Co.'s Newman 3, td 3714 ft, top of sand 3709 ft, set 6⅝ casing at 3698 ft, woc; Pettus town 2, blk 21, Pettus pool, td 450 ft, set 10-inch csg; Pettus town 7, blk 39, Pettus pool, td 3927 ft, top of pay 3900 ft, ru Christmas tree. R. Hahn et al's Copeland 1, Grayburg-Kimball area, td 1450 ft, dr. Independent O&G Co. & Moody-Seagraves Prod. Co.'s Quincy 1, A. J. Moyah sur, td 4970 ft, re-dr, dst show salt water, gas and oil. E. M. Jones' Rapp 3, s of Pettus pool, td 3087 ft, dr. J. S. Mauldin's Mauldin 1, G. A. Kerr sur, td 2260 ft, dr. Ed Price's Weiss 2, td 2554 ft, still sd for boiler repairs; Weiss 3, 900 ft ne of No. 1, lcn. Raullins et al's Campbell 1, 2747 ft from sw line and 3389 ft from nw line of tract in B&B sur, No. 129, four miles e of Mineral, ru, drill water well. Rowan and Hope's Goree 1, 600 ft from s and 300 ft from e line of blk 4 of Thomas Barton sur, two miles west of Mineral, dk, waiting on rig. Union Producing Company's Ray 22, 300 ft from w line of lease and 150 ft from extension of n line of blk 42, Pettus townsite, Pettus pool, lcn; Ray 23, 150 ft from e and 1260 ft from ne corner of townsite, offset to blk 39, Pettus pool, td 950 ft dr; Ray 25, 1700 ft from s and 1400 ft from e line of Pierce Miller survey in vicinity of No. 24, original gas area, lcn; Ray 26, 2500 ft from s and 2000 ft from w line of Pierce Miller sur in old gas area, lcn; Ray 30, 1100 ft from s and 600 ft from w line of W. J. Porter sur No. 529, two miles ne Pettus, td 4161 ft, dr. Wilson and Hill, Townsite 14, center of blk 14 in Pettus townsite pool, lcn; Townsite 16, center of blk 16, in Pettus townsite pool, dk. H. H. Weinert's Townsite 9, center of blk 9 in Pettus townsite pool, ru.

BEXAR COUNTY—Eckert and Son's John Brehm 2, 400 ft s of No. 1 Brehm in Dobrowolski pool, td 642 ft, set casing; John Brehm 3, 400 ft w of No. 2, lcn. Gatlin Oil Co.'s Mrs. Anna Beck 1, td 720 ft, casing set 661 ft, encountered sand 661 ft, thin stratum of shale about 680 ft, sand remainder of depth, being completed; Mrs. Anna Beck 2, 150 ft from ne line and 300 ft se of No. 1, tentative lcn. Hickey and Brown's Le Grange 1, in vicinity of Mitchell lake, td 450 ft, dr. Morrosos and Collins, Hamberdale 4, Dobrowolski field, spud in. William M. Morgan's Brehm 1, Dobrowolski field, td 680 ft, casing set about 640 ft, being completed. Penn Oil Co.'s Cooksey 1, td 1460 ft, casing set at 837 ft, top of Taylor marl about 1410 ft, bailing. Penn-Tex Oil Co.'s Sandemer 5, Menchaca sur, moving on; Sandemer 6, 300 ft s of No. 5, lcn; Sandemer 7, 300 ft s of No. 6, lcn; Dobrowolski 3, 620 ft w of No. 1, and 150 ft from s line of lease, lcn. Russell and Moore's Mills 2, td abt 800 ft, dr. Swearingen Oil Co.'s Fee 7, td about 710 ft, pumping more than nine bbls; Halverdier 3, 300 ft se of No. 2 and 150 ft from sw line in J. Perez sur, No. 59, Dobrowolski pool, preparing to ru. Weilbacher and Associates' Ernest 1, no report.

BLANCO COUNTY — Anderson and Manning's Speer 1, John W. Speer sur No. 2, abt 600 ft from s line and 800 ft from w line of tract, no rept. Adams and Lysles' Leeders 1, 150 ft from s and 1420 ft from e lines of James Stanford sur No. 29, abt 5 miles nw of Blanco City, td 570 ft, dr. Meeks et al's E. W. Walker 1, td 980 ft, dr. C. L. McCreary's Kiers 1, Scherling subdivision, td 670 ft, sd, to re-dr. Forest Oil Co.'s (Rosenfield et al) Hohenberger 1, sur 94, td below 400 ft, sd, moving on heavier rig. Hary Sitton's McMillen 1, 2 miles w of Blanco City, td 550 ft, dr.

BROOKS COUNTY—Ed East (Miller and Albricht's) Braulia C. De Garcia 2, La Mastena and Gonzalene tract, td 400 ft, set 6⅝-inch casing, now standing. Houston Oil Co.'s Holbein Wormser 2, El Palo Blanco de Maguellas Grant, td 4304 ft, dr in hard, sandy shale. Southern Crude Oil Purchasing Co.'s Holbein-Wormser 1, El Palo Blanco de Maguellas grant, td 3805 ft, dr in green shale.

CALDWELL COUNTY—Anderson et al's S. J. Barber 1, 1½ miles n of Buchanan pool, td 1810 ft, casing set top of serpentine, strong showing of oil, woc; Barber 2, offset to No. 1, lcn, to move on immediately. Batts et al's Roebuck 1, td about 2500 ft, dr. Cargill et al's Thomas 1, 1505 ft from e line and 150 ft from ne corner of A. J. Jordan tract in J. Roberts sur, to spud. J. E. Mills et al's McMahon 1, 270 ft from se line and 75 ft from se line of 50-acre tract in Pinchback sur, prep to spud.

COMAL COUNTY—Caldwell and Lanier's T. J. Byler 1, td abt 400 ft, dr.

DE WITT COUNTY—Penn Oil Co.'s Junkers 1, 2 miles ne of Meyersville, spudded. Gibson et al's William Van Oreder 1, six miles w of Yorktown, td 1435 ft, ru, well was temp abn in 1929, to re-dr.

DUVAL COUNTY — Frasher and Schoolfield's Bishop Duval Land Co. 1, 990 ft from n line and 1320 ft from e line, sur 135, lcn. Magnolia Pet. Co.'s Edge-Hahl 1, tur 63, td 2860 ft, dr. Benavides 3-A, (O'Hern and Seacord) blk 12, sur 174, td 1758 ft, rigged up to dr deeper. Sloan et al's Luby 1, sw corner of sur 593, lcn. S. R. C. Co.'s Duval County Ranch Co. 2, 150 ft from e line and 2050 ft from n line, sur 293, ru. Vacuum Oil Co.'s Duval County Ranch 1, 3143 ft from n line and 1568 ft from e line, sur 280, ru.

EDWARDS COUNTY — James Dalgish et al's Sid Peterson 3, Warner Ranch, td 4140 ft, sd. Phillips Pet. Co.'s Holman 2, sur 25, td below 5600 ft, dr.

FRIO COUNTY — Wray and Dunbar's Barnes 1, one mile north of Big Foot, td 2368 ft, set casing at 2311 ft, to be drilled in shortly, woc, excellent showing of gas. United North and South Dev. Co.'s Little 1, td about 3300 ft, dr.

GOLIAD COUNTY—A. G. Rhemenschneider, Trustee's, A. T. Fromme 1, 12 miles n of Goliad, td 2370 ft, water sand, odor of gas. Gibson Oil Co.'s Parks 1, 5000 ft from n line and 2500 ft from w line of Solomon Parks land in Dan O'Driscoll sur, 5 miles ne Goliad, td 2650 ft, coring. Union Producing Co.'s Ray 27, 1500 ft from se line and 4550 ft from sw line of Jabian Gomez sur, 2 miles ne of Union No. 3 Ray, lcn; Ray 28, 150 ft from s line and 800 ft from w line of 416.5-acre E. Ray tract, 2 miles due e of line of Union No. 3 Ray, lcn; Ray 29, td 472 ft, set surface csg, woc.

GUADALUPE COUNTY—Adams & Lysles' Seligman 1, 350 ft from s line and 150 ft from e line and 300 ft Guadalupe river in John King survey, in 462-acre tract, dk, prep to ru. Grayburg Oil Co.'s Wells 2, 6 miles sw of Darst Creek, td 3958 ft, sd in Edwards lime topped at 3950 ft. Gulf Production Co.'s Posey-Bale 9, spudded; Thomas Dix 6, td 2556 ft, producing 600 bbls; Dix McKean 10, td 2630 ft, prod 980 bbls; Tadlock 3, td 2630 ft, prod 480 bbls; Tadlock 4, td 2624 ft, prod 925 bbls; Dix McKaen 11, td 2605 ft, set casing at 2580 ft, producing about 3000 bbls. Calhoun and Miller's Linenbarger 1, 750 ft from e line and 650 ft from s line of 250-acre tract, no report. Humble's Denman 15-A, td 2588 ft, prod 1000 bbls; Denman 17-A, spudded; Denman 18-A, 300 ft

w of No. 17 and 450 ft from n line, dk. Magnolia Pet. Co.'s Dix 9, td 2579 ft, prod. 500 bbls; Dix 12, td 2562 ft, set csg, woc; Dix 10, td 2578 ft, casing set 2564 ft, dr in; Rand Miller 4, td 2645 ft, casing set at 2630 ft, prod about 450 bbls; Dix 11, td 2580 ft, prod 500 bbls. Suttle et al's Baenziger 2, five miles e of Seguin, td 1948 ft, casing set 1763 ft, top of Austin chalk. The Texas Co.'s Dallas Wilson 9, td 2630 ft, prod 600 bbls; Parrish 2, td 2628 ft, casing set at 2620 ft, prod 850 bbls; Posey-Baker 7, 300 ft from ne line and 450 ft from nw line, dk. Trinity Drillers' J. M. White 2, 1205 ft from ne lines and 50 ft from se line in 166-acre tract in M. Miller sur, lcn. Weinert et al's Malone 1, one-half mile ne of Tidal-Seligman well, td abt 2550 ft, resume dr.

JIM HOGG COUNTY—Wm. H. Barnhart's McCampbell 1, 450 ft from w line and 150 ft from n line, lot 33, Barnhardt Sub of McCampbell ranch, Las Vibotitas Grant, td 2005 ft, standing. Cole Pet. Co.'s W. P. Allen 1, blk 7, sur 23, td 25 ft, standing, waiting on water. H. W. Pippin's N. Hinnant 1, 150 ft from s line and 150 ft from w line, blk 11, sur 147, dk. Wilson's Edds 1, sur 210, lcn. J. D. Pulliam, Jr.'s, Jones 1, Holden subdivision, Diego Hinojosa Grant, td 1375 ft, dr. E. E. Watts, Agent's, Gomez 1, td 1360 ft, dr heavy gas show.

KARNES COUNTY—Fort Bend Oil Co.'s Newberry 1, 3 miles s of Green, td 2330 ft, dr. J. Morrissey's Ragsdale 1, td 1580 ft, dr, this well was shut several months around 1400 ft.

KENDALL COUNTY—Borget et al's Willie Haag 1, td 1340 ft, dr. R. M. Perkins' Lawhorn 1, td 710 ft, fsh for string of tools. Dixon et al's Behr 1, 3 mi se Sisterdale, td 2290 ft, dr. Molwinkle et al's Karston 1, sur 724, td 1520 ft, dr. Permian Oil Co.'s Boles 1, 5 miles ne of Boerne, td below 500 ft, fsh for tools. Hardy Sitton's W. B. Garvin 1, near Kendalia, td 760 ft, re-dr after setting string of six-inch casing. P. B. Sterling's McCrocklin 1, C. B. Owen sur, four miles w of Kendalia, td 1200 ft, dr.

KERR COUNTY — Mashe and Turnstill's Jeff Love 1, Western Kerr County, td 1860 ft, 10-inch csg set in Penn lime, no later report.

KINNEY COUNTY—Magnolia Pet. Co.'s Wardlow 1, Blaez survey, td 3215 ft, sd to replace engine.

LA SALLE COUNTY — Fred W. Volzs Coleman 1, blk 15, sur 514, ru.

LEE COUNTY—Burt et al's (M. D. Rickett), R. C. Saunders 1, td below 3000 ft, dr. A. H. Wheeler et al's McDay 1, Donohue sur, td 1650 ft, sd, prep to re-dr. Merts and Beavens' Thomas 1, W. H. Thomas farm, td 1500 ft, dr.

LIVE OAK COUNTY—Houston Oil Co.'s Snyder 1, E. Garner sur No. 253, td 560 ft, dr; Cartwright 22, td 5424 ft, gas showing, reaming at 3280 ft to set csg; Boothe A-1, 2267 ft, woc. Markley et al's Reeves-Brown 1, 1300 ft s of F. S. Sellers tract and 1800 ft e of railroad in J. E. King sur, 1007-acre tract of Illinois Dev. Co., dk. Penn Oil Co.'s Lyne 1, td 3500 ft, dr top of Jackson 2200 ft. Jacobs, Buzzini and Pickett's Key 1, 5 miles e of George West, td 600 ft, set 10-inch csg, woc. Sid Keoughan's C. E. Terrell 1, 7 miles from Sunniland (formerly Fant City), td 447 ft, set 12½-inch csg, waiting on material.

MAVERICK COUNTY—Rycade Oil Co.'s Chittim 5, Sec. 129, 4766 ft, sd for water; Sullivan 5, Sec. 82, td 7092 ft, fsh.

MEDINA COUNTY — Calco Pet. Co.'s Crawford 1, sur 478, td 2515 ft, dr; top of Eagle Ford 2547 ft, top of Buda 2509 ft. National Oil Co.'s Howard 1, 6 miles nw of Devine, td 1645 ft, set 6⅝-inch casing at 1610 ft on top of sand, cored 35 feet of oil saturated sand, completed fishing job and now finishing up well.

McMULLEN COUNTY—Mogul Pet. Co.'s Martin 1, 15 miles sw of Tilden, td 28 ft, set 10-inch csg, standing. Brodie, Sheaver and Emerich's Skiner 1, 12 miles se of Tilden, spudded and standing.

NUECES COUNTY — Houston Oil Co.'s Comstock 1, to spud in at last report. Independent O&G Co.'s Baldwin 1, td 5410 ft, dr, cored oil sand at 5216 ft, but did not develop into producer. Saxet O&G Co.'s (Pearson et al), Donigan 2, six miles west of Corpus Christi, td below 3000 ft, dr; Racheal 17, 150 ft from n and 1000 ft from e line on common line between the F. S. and D. C. Racheal tracts, spudded. South Texas Prod. Co.'s Walters 3, 800 ft s and 460 ft from e line of Otto Walters land, sec 34, Agua Dulce field, dk. H. H. Weinert's Mohle 1, 450 ft from s and 450 ft from w line of sec 94, lcn.

REAL COUNTY — McGinley and Gigler's L. A. Habley 1, center of sw quarter of survey 175, td 500 ft, dr.

SAN PATRICIO COUNTY — Cosden Oil Co.'s Powell 1, se of Odem, td 1600 ft, set surface csg, re-dr. Jacobs, Buzzini and Pickett's J. C. and Bobby Baldwin 1, 6 miles e of Sinton, td 4020 ft, moving on new rig. J. L. Kenedy's Lollie McRae 1, td 1600 ft, dr. Peterman Oil Co.'s O. K. Crow 1, 2 miles s of Sinton, td below 4100 ft, dr; Foster 1, 3½ miles w of Sinton, lcn. Saxet Oil Co.'s Carroll 1, 8 miles n of Gregory, dk blt, no machinery on site as yet. Union Producing Co.'s Welder 4, td below 4750 ft, dr.

STARR COUNTY—J. L. Smith's Welsh 1, Pedernal Grant, td below 1000 ft, dr. Los Olmos Oil Co.'s Kelsey-Bass 1, td 373 ft, flowed gas and sulphur water at 371-73 ft, rebuilding dk to set 8-inch csg. The Texas Co.'s V. G. Guerra 5-A, td 3164 ft, dr.

UVALDE COUNTY — Phantom Oil Co.'s Claudt 1, survey 611, td abt 2550 ft, sd at last report.

VAL VERDE COUNTY—Independent Operator's Whitehead 1, I&GN sur, td 5430 ft, re-dr, on receipt of 6000 ft of line. Phantom Oil Co.'s Ingram 1, blk D-8, td 3035 ft, fsh for tools.

VICTORIA COUNTY — Houston Oil Co.'s McFadden 1, td 3870 ft, dst showed slight amount of gas. Lion O&R Co.'s McFadden 2, 600 ft e of No. 1 in M. Trevino sur, Bloomington district in s part of county, td 6042 ft, dr. The Texas Company's McFadden 1, td 5063 ft, dst at 5061-63 ft showed 175 ft of mud.

WEBB COUNTY—J. L. Elliott's Esperanza Land and Live Stock Co. 1, sur 815, td 1450 standing. O. W. Killam's Killam 1, (Villegas) sur 1248, td 2050 ft, showed oil, gas and salt water at 2040 ft; Bruni 1, (Trussell, Cezeaus Putman) Mariano Arispe Grant, td 2354 ft, ru to dr deeper; Bruni 3, Sur 835, Aviator pool, td 1852 ft, dr. Magnolia Pet. Co.'s Sue Jones 1, sur 647, Carolina-Texas pool, td 4775 ft, dr; J. Benavides 1, Myrtle E. Hale sub, Cole Pool, td 1751 ft, set 8⅛-inch casing at 1747 ft on top of sand, prod 12,000,000 cubic ft gas with 350 lbs. pressure. George S. Marshall's C. W. Webster 1, 810 ft from s line and 150 ft from w line sur 684, Carolina-Texas field, dk.

WILLIAMSON COUNTY—W. D. Anderson's M. V. Lawerence 7, td 2242 ft, set csg; M. V. Lawerence 8, lcn; Simmons 5-A, td 1465 ft, set csg; T. P. Simmons 6, prep to spud; S. J. Smith 1, td 2575 ft, to re-dr, now sd for water. Bartlett and Wilson's R. E. Stewart 1, td about 1100 ft, dr; R. E. Steward 2, td not reported, sd. E. L. Chapman's Fuchs 6-A, td 1892 ft, prod 200 bbls. J. L. Collins' M. V. Lawrence 5, S. Miller sur, 1462 ft, drilling in; M. V. Lawerence 7, S. Miller sur, td not reported, casing set, prep to dr in. E. E. Ertel et al's H. Swenson 1, td 1035 ft, sd for water, prepare to re-dr. Elliott and Chapman's A. J. Carlson 1, td 40 ft, sd. Horska Bros.' Garzel 1, e of Chapman field, td 800 ft, dr. McNeil and Matthews' Meiske 1, 4 miles ne of Taylor, td 1200 ft, dr, had showing of oil at 360 ft which made about 8 bbls 42 gravity. Martin et al's S. Jarrall 1, td 40 ft, sd. Tom Patton's J. C. Abbott 1, 19-acre strip purchased from Peterman, McNeil and Mills, td 500 ft, dr. G. Stratton's J. C. Abbott 5, 450 ft from e line and 150 ft from s line of 32-acre tract in S. Miller sur, td not reported, prod 500 bbls. A. M. Keisker's E. L. Chapman 1, dk. Texas Gas Fuel Dev. Co.'s Garett and Allison 1, 9 miles ne of Taylor, td 40 ft, sd. Sarsfield and Wilson's T. A. Walker 1, 8½ miles ne of Elgin, td 700 ft, sd for water, to re-dr.

ZAPATA COUNTY — Alamo Drilling and Leasing Co.'s Trevino 6, Claggett lease, 450 ft from s line and 150 ft from e line, blk 1, sur 66, Muckelroy pool, lcn. Allied O&G Co. & Allen and Morris' E. Guittereg 9, Comitas Grant, Muckelroy pool, td 1288 ft, set 6⅝-inch casing top of sand 1267 ft, prod 60 bbls oil; E. Guitterez 10, Comitas Grant, Muckelroy pool, td 1288 ft, top of sand 1282 ft, set 6⅝-inch casing 1281 ft, woc. F. M. Blair and Son's E. Guiterrez 1, Comitas Grant, td 1650 ft, coring, sand 1389-92 ft. H. H. Coffield's S. Bustamente 1, share 34, Muckelroy pool, td 1390 ft, top of sand 1384 ft, casing set at 1382 ft, prod 15,000,000 cu ft gas. Edgington and Niles' E. T. Garza 1, 150 ft from s line and 150 ft from w line, blk 18, sur 413, Muckelroy pool, td 1950 ft, testing sand through tester. K. D. Harrison's Pedro de los Santos 1, Share 6, Comitas Grant, td 1982 ft, sand topped at 1976 ft, showed water, sd. Keene and Jackson's M. Garza 1, blk 59, Comitas Grant, td 387 ft, re-dr. O. W. Killam's Cuellar 30-B, sur 277, Cuellar pool, td 850 ft, dr; Cuellar 26-A, Cerito Blanco Grant, td 1553 ft, dr; Cuellar 27, Cerrito Blanco Grant, td 105 ft, dr. National Oil Co. of Delaware's Luther et al 2, Blk 13, sur 7, td 780 ft, dr, tested high gravity oil at 689 ft. Lincoln O&G Co.'s Gutierrez 1, blk 24, td 1150 ft, standing. Mackenzie and Tallmadge's G. F. Trevino 1, sur 4, ru. Moore and Moore's Adela G. de Flores 1, F. M. Doty subdivision, td 1140 ft, testing sand through tester; Adela G. de Flores 2, E. M. Doty sub, td 50 ft, standing. Nordan and Morris & Grimm and Yakey's S. Bustamente 1, Fansler Partition, Comitas Grant, dk. B. F. Nixon's A. Gutierrez 1, Borego Grant, td 37 ft. set 10-inch cas, woc. John J. O'Hern's S. Benavides 1, blk 10, Fansler and O'Hern sub, Villa Grant, lcn. John Pappas Pool, Inc.'s Flores 1, Porcion 35, John Pappas pool, ru. Penny Production Co.'s Juan V. Cuellar, Jr., et al 1, Pappas subdivision, Porcion 33 and 34, td 1550 ft, cored deeper and testing, showed small amount of gas in sand at 1545 to 50 ft. W. R. Shankle's Trevino 10, td 1260 ft, top sand 1251 ft, set 6⅝-inch casing, producing 120 bbls; Trevino 11, td 1280 ft, top of sand 1266 ft, 6⅝-inch casing set 1266 ft, testing; Gutierrez 6, Comitas Grant, dk; Gutierrez 7; share 4, Fansler Partition, Comitas Grant, Muckelroy pool, lcn. S. R. C. Corp.'s Cuellar 5-B, td 1234 ft, sand topped at 1213 ft, set 6⅝-inch casing 1213 ft, testing; M. Trevino 1-C, Cerrito Blanco Grant, Sur 412, td 1150 ft, dr. Wicker, Arnold and Ahler's M. Garza 3, Zoro ranch, Comitas Grant, Muckelroy pool, ru. T. H. Ward's Guadalupe Urbide 1, Partition No. 6, Trinidad Urbide Partition of Juan V. Borrego Grant, ru.

EAST TEXAS

CASS COUNTY—Jno. C. Rodgers' Lanier 1, K. A. Welborne sur, dr 1400 ft.

HARRISON COUNTY — Shell Rock Pet. Co.'s Daugherty 1, Buris sur, sd 3520 ft.

MARION COUNTY—W. D. Chew's Fee 1, Wm. Hamilton sur, set 6-inch cas 2270 ft, dr lime 3070 ft. Trammell et al's Hussey 1, Chas. Lockhart sur, dr 1500 ft.

PANOLA COUNTY—Texas La. Prod. Co.'s Lawrence 1, Harison Davis sur, dr 2808 ft. Knott et al's Marion Durham 1, Chas. Haley sur, arr resume dr, td 2400 ft. Smith et al's Hunt 1, Albert Johnson sur, dk. Bell et al's Burnett Lbr. Co. 1, S. B. Hendrick sur, cored sandy shale showing oil, set 8⅝ cas 2047 ft, dr in 2080 ft. Ark. La. P. L. Co.'s Brumble A-2, B. C. Jordan sur, set 9-inch cas 2592 ft, dr lime 2942 ft. Creighton & Hart's Kyle 1, J. Tippett sur, topped chalk 1444 ft, dr chalk 1965 ft. Warren & Dawes' McNeese 1, A. Booker sur, dk. Natural Gas Prod. Co.'s Roquemore 8, B. C. Jordan sur, old gas well, td 4645 ft, rig up to deepen. W. G. Banks' Baldwin 1, Hampton West sur, rig up.

SABINE COUNTY—Loring Oil Co.'s Nona Mills Lbr. Co. 1, Jas. Mason sur, dr Blossom 3575 ft.

SHELBY COUNTY — C. R. Ridgeway's Parker 1, Jesse McElvey sur, sp. Chapparral Oil Co.'s Holt 2, Matthew Moore sur, sd 3300 ft.

TEXAS GULF COAST

AUSTIN COUNTY—O'Hara et al's Schrader 1, sd 1800 ft; Empire's Kunze 1, San Felipe, set cas at 1225 ft; Humble's Duncan State Land 2, e edge Raccoon Bend, sd 2560 ft, high water; Hugo Hagan 1, 2 mi s Raccoon Bend, abn at 5044 ft in hard sand; R. Hardy B-3, e edge Raccoon Bend, dk.

BRAZORIA COUNTY—Thos. Faust et al's Fee 6, 2 mi s Nash dome, dr 5315 ft rock; Steel & Strickland's Lochridge 1, near Lochridge, sd 50 ft; Rycade's Wisdom 27, Nash dome, dr 5520 ft sandy shale; Rycade & Ameada's Seaburn 2, Stratton Ridge, dr 1100 ft rock; Freeport Sulphur Co.'s Fee 2001, Bryan Mound, dr 4260 ft sandy shale; Seaburn 1; Stratton Ridge, dr cap rock at 1650 ft; Stratton 1, Stratton Ridge dr 1079 ft gbo; The

Texas Co.'s Ewing 1, Manvel, making up dr stem, td 7145 ft; The Texas Co.'s J. H. Murdock 1, Fresno, rd 3585 ft gbo and lime; Mills Bennett's Allen 2, Allen dome, dr 4380 ft sandy shale; Randon 1, Allen dome, sdtr at 4600 ft, td 5320 ft; United Oil Synd's Mores 1, 3 mi n Danbury, sd 1450 ft.

CALHOUN COUNTY—The Texas Co.'s Thomas 1, Chocolate Creek, J. P. Tilley survey, dr 5625 ft sandy shale, showed salt water on dr stem test.

CHAMBERS COUNTY—Pure's Lost Lake 5, fsh 5155 ft; Shell's Herff 2, Moss Bluff, dr 3275 ft sandy shale; Pure-Rycade's Jackson 1, Oyster Bayou, dr 6325 ft sandy shale; Chicago Oil Corp.'s Lawrence 1, 10 mi s Barbers Hill, sd 3950 ft.

FORT BEND COUNTY—Gulf's Moore 25, Moores Field, dr 4050 ft sand, oil show; Moore 26, dr 3505 ft hard sand.

GALVESTON COUNTY—Gulf's Smith 10, High Island, dr 5095 ft lime.

GRIMES COUNTY—Wainwright-West Oil Ltd.'s Templeman 1 ,6 mi s Navasota, sd 3263 ft, waiting for fuel; R. H. Byrd, Dearing et al's Muenke 1, ½ mi n Anderson, cored sand and lignite 2515-19 ft.

HARDIN COUNTY—D. O. Speights' Gidrey 1, 4 mi s Batson, stdg 2850 ft.

HARRIS COUNTY—Humble's Simms-Smith 78, Goose Creek, breaking down dr stem; Warren S. Hockley, dr 4705 ft sand and shale; W. C. Turnbow et al's Miller 1, 3 mi e Deer Park, ru; Mrs. J. C. Bladwin's Kitzman 1, 2 mi n Cypress, sd 4250 ft; Gulf States Oil Co.'s Augspurger 1, 8 mi n Houston court house, dr 2010 ft shale; Golden Star Oil Co.'s McDade 1, 1 mi n Dyersdale, dr 1835 ft gbo.

JACKSON COUNTY—Jackson Co. Oil Synd.'s Drushell 8, Edna, set 6 5-8 inch cas at 3865 ft; Lee 2, wo, Edna, dr 3800 ft sandy lime.; Warner-Quinlan's Hungerford 1, Henry Smith sur, lcn.

JEFFERSON COUNTY—Westbury Oil Co.'s West 1, S. Choate Sur, sd 4100 ft; The Texas Co.'s Pipkin 4, Big Hill, dr 1920 ft sandy shale.

LIBERTY COUNTY—Saxet Oil Co.'s Davis 2, N. Dayton, set cas at 1700 ft; Wilhite 3, N. Dayton, fsh 5526 ft; Harrison Oil Co.'s Gulf Fee 1, N. Dayton, dr 4485 ft gbo and lime; Jones 1, dr 4401 ft shale; Gulf's Ezzell 1, Hankamer, dr 3286 ft shale and lime; Boyt 9, Hankamer, dr 2725 ft gbo; Cranfill-Reynolds' Vajdak 1, wo, Esperson, trying sdtr at 3690 ft; Yount-Lee's Moores Bluff 3, Esperson, dr 7350 ft shale and lime; Gulf's McFadden 2, Moss Bluff, dr 5765 ft sand, oil show; Humble's Breeden 1, Moss Bluff, nw flank, dr 3710 ft sandy shale; Hylton 1, Moss Bluff, ne flank of dome, dr 5525 ft lime; Sergent 1, 3000 ft n Gulf's McFadden 1, Moss Bluff, dr 3610 ft sandy lime; Rycade's Heiskell 1, Jos. Dugat Sur, dr 4360 ft sand and shale.

MATAGORDA COUNTY—Empire's Boker 1, Citrus Grove, dr 5385 ft sandy lime; Cockburn Oil Corp.'s Hawkins 2, Shepherds Mott, north dome, dr 1850 ft gbo.

MONTGOMERY COUNTY—Price & Wilhite's Juergus 2, 3 mi Conroe, sd 2950 ft shale. Lake Creek Oil Co.'s Hunt 1, s Conroe, dr 645 ft shale.

ORANGE COUNTY—The Texas Co.'s Stark 2, Port Neches, dr 5450 ft sand and shale, oil show at 5425 ft; Gulf's W. H. Stark 1, Port Neches, dr 6315 ft sand and shale.

WALKER COUNTY—Joyce Richardson et al's Smither 1, 12 mi n Huntsville, sd 3450 ft.

WASHINGTON COUNTY—Clifton et al's Pruiss 1, 3 mi sw Brenham, sd 1630 ft.

WHARTON COUNTY—C. S. Thomas' Taylor 1, Boling, temp abn at 1585 ft, dr 250 ft rock; Volney 1, Boling, Givan et al's Hudgins 1, sd 415 ft.

SOUTH LOUISIANA

ACADIA PARISH—Yount-Lee's Crowley 7, Evangeline, dr 5100 ft lime rock; Houssiere-Latrielle 9, Evangeline, dr 7700 ft shale.

ASSUMPTION PARISH—Poor Boys Drlg. Co.'s LaBarre 1, Napoleonville, stdg 2425 ft. Tex. Gulf Sulphur's Landry 1 and LeBlanc 1, Napoleonville, ru.

AVOYELLES PARISH — R. A. Tippett's Chatalin 1, 5-1n-3e, sd 3400 ft. M. L. Vincent's Morrow 1, 14-2s-4e, dr 2750 ft shale.

CALCASIEU PARISH—J. O. Davis' Ind. Lbr. Co. 1, Starks, dr 6035 ft shale. Yount-Lee's Miller 1, w edge Lockport, dr 7410 ft water sand. Union Sulphur Co.'s Martha Moss 1, Lockport, dr 6500 ft gbo and lime; Moss 2, Lockport, sd 5065 ft. Dr. Thomas et al's Jno. Hewitt 1, 11-9s-11w, lcn. Crawford Doyle's Johnson 1, 23-9s-13w, set cas at 50 ft. J. G. Sutton's Ind. Lbr. Co. 2, Starks, dr 1800 ft gbo.

CAMERON PARISH—Shell's Watkins 15, Black Bayou, dr 4400 ft oil sand; Black Bayou State 1, drilled cement plug at 5140 ft. Freeport Sulphur Co.'s Yount-Lee 4, Black Bayou, dr 1235 ft cap rock; No. 5 dr 850 ft. Vacuum's Cameron Meadows Ld. Co. 1, 21-14s-13w, td 5248 ft, trying to sdtr around 3875 ft. The Texas Co.'s Calcasieu Lake State A-6, dr 1915 ft sand rock; State-E. Hackberry 7, dr 4835 ft sand and lime.

IBERIA PARISH—The Texas Co's Vermilion Bay 6, lcn.

IBERVILLE PARISH—Standard's Wilbert 8, Bayou de Glaisse, r 3600 ft; Wilbert 5, Bayou Blue, washing well, td 3225 ft; Wilbert 7, Bayou Blue, dk; L. Baist Cooperage Co. 1, Bayou Blue, capping piling; E. B. & S. P. Schwing 1, Bayou Blue, dr 3365 ft sandy shale. Shell's Wilbert 5, White Castle, shot stuck dr stem at 5000 ft. Gulf's Gay 1, Bayou Choctau dome, driving piling. Texas Gulf Sulphur Co.'s Wilbert 2, Bayou Choctau, ru; Wilbert 5. lcn; Wilbert 6, lcn.

JEFFERSON PARISH—Humble's Deleware Fur Co. 1, Barataria dome, sec 2-16s-23e, set screen at 5000 ft for test.

LA FOURCHE PARISH—The Texas Co.'s La. Ld. & Explo. Co.-Leesville 1, sec 27-21s-22e, dr 5130 ft lime and shale.

PLAQUEMINES PARISH — Humble's Cockrell-Moran 2, Lake Grande Ecaille, ru. The Texas Co.'s Garden Island Bay State 4, 39-23s-33e, dr 4325 ft sandy shale. Gulf's Buras Levee Board 1, Rose dome, 27-21s-30e, ru.

ST. JAMES PARISH—Convent Oil Co.'s Jacobs 1, 28-11s-4e, set cas at 1800 ft.

ST. MARTIN PARISH—The Texas Co.'s Iverville Ind. Co. 2, Hager dome, dr 4835 ft sand; Iberville Ind. Co. 3, lcn; St. Martin Ld. Co. 5, Hager, moving in material. Rycade's Woodyard Lake 1, Bayou Bouillon, dr 6048 ft sand; State 4, Bayou Bouillon, dr 2129 ft gbo.

ST. MARY PARISH — The Texas Co.'s South Coast Co. 1, Charenton, sec 41-14s-10e, dr 7789 ft sand.

ST. TAMMANY PARISH—Washington & St. Tammany Drlg. Co.'s Coussack 2, dr 300 ft.

TERREBONNE PARISH — Chas. Paggi's Evergreen 2, Houma, sd 1800 ft. La. Gas & Fuel Co.'s Minor Est 1, Houma, dk. The Texas Co.'s Bay Junop 2, 21-21s-14e, dr 4650 ft shale; Dog Lake A-3, 5-22s-16e, dr 3301 ft gbo; State Caillou Island 4, 19-23s-20e, lcn; No. 5 dr 2000 ft sticky shale; Lake Pelto State 4, 8-23s-18e, lcn; No. 5 lcn; No. 6 capped piling; Bay St. Elaine 5, dk; No. 6 lcn; La. Ld. & Ex. Bay State Elaine 1, lcn; State-Lake Barre 5, 30-21s-20e, dr 3500 ft shale; No. 6 lcn; No. 7 capped piling. Four Isle 4 dr 4841 ft sandy lime.

WEST FELICIANA PARISH — Putnam Synd.'s Como. Plantation 1, 54-1s-4w, preparing to make dr stem test at 3335 ft.

NORTH LOUISIANA

Completions

CADDO PARISH—		
L. B. Mawk, Swann 1, 23-21-14....	*	700
CLAIBORNE PARISH—		
El Dorado Chief Oil Co.'s Simmons 1, 27-20-7w	*	2216
CATAHOULA PARISH—		
Louisiana G&F Co., Tensas Delta A-1, 23-6-5e	*	2830
DE SOTO PARISH—		
J. M. Burnham, Hood 1, 3-11-14 ...	*	2762
NATCHITOCHES PARISH—		
S. D. McDaniels' Clark-Morse Lbr. Co. 2, 23-5-6w	*	2536
SABINE PARISH—		
Lanier & Tarver, Newton 1, 25-8-12	150	2433
Loring Oil Co., Shull 2, 26-8-12....	*	2643
Texas Co., Stille 1, 33-8-11	*	2515
Loring Oil Co., Trammell 1, 4-7-11	30	2400
Pelican Nat. Gas Co., Sabine Lbr. Co. 4, 11-7-12 3000		2357
R. L. Gay, Tr., Sabine Lbr. Co. 5, 15-7-14	*	2723

BIENVILLE PARISH — Triangle Drilling Co. et al's McDermott 1, 28-18-6w, dr chalk 2520 ft, 6⅝ cas set 2174 ft. S. P. Borden et al's Thomas 1, 27-16-9w, dr 3810 ft. Carter & Dobson's White 1, 9-18-6w, sd 1690 ft. Olds & Smith's Brice 1, 15-16-6w, top Cane River 530 ft, sd 1790 ft.

BOSSIER PARISH—Andrews & Davlin's Nattin 1, 15-22-14, set 8-inch cas 1471 ft, 20 ft bro sand, fsh bailer, td 1501 ft. Autrey Oil Co.'s Johnson 1, 34-19-11, sd 60 ft; McDade 1, 28-19-11, core hd lime 2577 ft. H. I. Morgan & Shreveport-El Dorado P. L. Co.'s Weatherbee B-6, 22-19-11, cor lime 1650 ft. Louisiana OR Corp.'s Bodcaw B-13, 11-19-11, sp 10-inch cas 200 ft, dr chalk 1000 ft.

CADDO PARISH—L. B. Mawk's Swann 1, 23-21-14, dry abn, td 700 ft, no cas set. Texas La. P. L. Co.'s Wall 1, 33-23-16, rig up; French 1, sw nw 34-23-16, sp set 12½-inch cas 870 ft.

CATAHOULA PARISH — Louisiana G&F Co.'s Tensas Delta A-1, 23-6-5e, dry abn, td 2830 ft. National Drilling Co.'s Marsh McMillian 1, 26-9-6e, rig up.

CLAIBORNE PARISH—El Dorado Chief Oil Co.'s Simmons 1 (formerly Dance 1), 27-20-7w, sw abn, td 2216 ft. Triangle Drilling Co.'s Brownfield 1, nw ne 6-19-5w, rig up. J. W. Stevenson 1, sw se 6-19-5w, dr 1175 ft. Baird Bros. et al's Whittaker 1, 30-20-7w, sd 2200 ft. Bough et al's Alexandria 1, 27-20-8w, sd 2200 ft.

CALDWELL PARISH—Hudson et al's Burton 1, 36-12-2e, sd in sw sand 1672 ft.

CONCORDIA PARISH—A. C. Glassell et al's Pecania Plantation 1, 46-8-9e, lcn. Britton-Koontz Nat. Bank 1, 20-8-10e, lcn. Joe Marr et al's Maxwell 1, 35-3-8e, set 8-inch cas 2000 ft, r to bottom 2890 ft.

DESOTO PARISH — Joe Burnham et al's Hood 1, 3-11-14, set 6⅝ cas 2290 ft, tested 1 mil ft gas 2726-37 ft, sw abn, td 2762 ft. Mich. Louzanna O&G Dev. Corp.'s Payne 1, 12-11-16, sd 2070 ft. Odell & Lawton's Tidwell 1, 11-13-14, tested sw show gas 3004 ft, arr plug back to shut off sw. Holly Oil Co.'s Talbot 1, 9-13-13, sd 1230 ft. Pelham & Bundy's Rhodes 1, 32-13-14, set 6⅝ cas 2800 ft, pumping oil and sw wo gauge, td 3009 ft. J. W. Clark's Tidwell 1, 22-13-14, cor 2735 ft. W. H. Weichert's H. Smith 1, 31-14-15, dr 620 ft. Standard Oil Co. of La.'s Farmer A-4, 5-13-13, sp 10-inch cas 83 ft, dr 1385 ft. S. A. Guy et al's Dowling Bros. 1, 31-14-14, sd 1354 ft. Gulf Ref. Co.'s Dry et al 1, 14-11-15, arr abn in bro lime strks blue shale, td 3584 ft. Ark. La. P. L. Co.'s Johnson 3, 1-11-14, dk.

MOREHOUSE PARISH—Pelican Nat. Gas Co.'s Tensas Delta 1, 17-18-6e, dr rock 2985 ft.

NATCHITOCHES PARISH—W. M. Coats et al's Collins 1, 28-9-10, base chalk 2612 ft, cor sand 3093 ft. J. W. Cocper et al's Cooper 1, 35-11-10, arr retest thru ds in chalk rock, td 1290 ft. La. Delta Pecan 1, 32-11-10, sd 1000 ft; Cooper 2, 32-11-10, lcn. S. D. McDaniels' Clark-Morse Lbr. Co. 2, 23-5-6w, sw abn, td 2536 ft.

OUACHITA PARISH — C. W. Frierson's Haynes 1, se sw 9-17-3e, topped Monroe gas rock 2462 ft, ar set 6-inch cas 2433 ft, td 2466 ft.

RED RIVER PARISH—Lucky Strike Oil Co.'s Chaffraix 1, 33-12-10, sd 2820 ft. T. G. Shaw's Wilkinson 1, se se 4-12-10w, dr chalk 1500 ft.

RICHLAND PARISH — W. C. Feazel's Landrum 1, 6-16-7e, dk. Island O&G Co.'s Noe 1, 3-16-5e, set 6-inch cas 2350 ft, topped Monroe gas rock 2365 ft, tested sw 2479, 2509 and 2539 ft, sd, wo 2549 ft.

SABINE PARISH — Magnolia Pet. Co.'s Giaque 1, 26-7-14, cor hard lime 3540 ft. McDaniels et al's Batson 2, 16-8-12, sd 2136 ft. Loring Oil Co.'s Shull 2, 26-8-12, dry abn, td 2643 ft; Middleton 1, 26-8-12, rig up. Lanier & Tarver's Newton 1, 25-8-12, set 6⅝ cas 2325 ft, flowing 150 bbls oil day, td 2433 ft, 60 ft Zwolle chalk. Lacey Barkett Oil Co.'s D'Anna 1, 26-8-12, set 6⅝ cas 2194 ft, fsh liner 2412 ft. Ark. Fuel Oil Co.'s Russell 1, 26-8-12, set 7-inch cas 2356 ft, dry at 2461 ft, setting liner to test, td 2600 ft. R. L. Gay, Tr.'s, Bowman-Hicks 8, 18-7-13, plugged back to 2492 ft, old td 2552 ft; Sabine Lbr. Co. 5, 15-7-14, topped marl 2116 ft, set 6⅝ cas 2104 ft, sw abn, td 2732 ft. D. H. Reddick et al's Scretchfield 1, 18-9-12, sd 3280 ft. Paramount O&G Co.'s

Woolums 1, 1-16-12- set 6-inch cas 2310 ft. Zeke Lohman's Wyatt Lbr. Co. 1, 18-4-11, partly rig up wo. Lohman & Walker's Hubley 1, 21-7-11, set 6-inch cas 1235 ft, sd 2300 ft. Pelican Nat. Gas Co.'s La. Long Leaf 4, 4-7-11, set 6-inch cas 2275 ft, wosr, td 2557 ft. La. Long Leaf 5, nw sw 4-7-11, rig up; Sabine Lbr. Co. 4, 11-7-12, set 6-inch cas 2279 ft, flowing 3000 bbls oil day thru ¼-inch choke, td 2357 ft. Philp et al's Turner 1, nw nw 4-7-11, lcn. G. D. Neff, Tr.'s, Turner A-1, 4-7-11,set 6⅝ cas 2200 ft, dr 2440 ft. Loring Oil Co.'s Garner 1, 4-7-11, set 6⅝ cas 2266 ft, blg to test in chalk rock, td 2369 ft; Trammell 1, sw nw 4-7-11, set 6⅝ cas 2276 ft, flowing 30 bbls day thru 2-inch tub, td 2400 ft. Stacey et al's Polly 1, 18-8-12, rig up. Texas Co.'s Largent 1, 24-8-12, rig up. Texas Co.'s Stille 1, dry abn, td 2515 ft; Largent 1, 24-8-12, rig up. Longoria et al's Belton 1, 31-9-12, rig up. A. C. Glassell's Logan Oil Co. 1, 23-10-13, sd wo water1800 ft. Franks et al's Hays 1, 22-8-11, rig up. David M. Lide's Ponder 1, 15-7-11, cor 2260 ft. Dixie Oil Co.'s Tatum 1, ne ne 26-8-12, sp set 10-inch cas 100 ft; Parrott 1, se ne 26-8-12, dr 1994 ft. Lyons et al's Williams 1, sw se 32-8-11, dr 1700 ft. Boone, Tr.'s, Turner 1, nw nw 4-7-11, rig up. Wilson & Sons' Gandy-Garrett 1, 4-5-12, dr 980 ft. Teteco Oil Co.'s Long Leaf Lbr. Co. 1, 18-6-12, sr at 2500 ft, td 4077 ft. Tom David's Smith 1, 27-8-10, rig up. Merritt et al's La. Long Leaf 1, 33-8-11, rig up.

TENSAS PARISH—A. R. Willis' Curry 1, 39-11-12, flowing sw with show gas, td 2780 ft. Stovall Drilling Co.'s Miller 1, 18-10-10e, arr plug back and cas about 700 ft to test gas show, td 1560 ft.

WEBSTER PARISH — Sarepta Oil Co.'s Gardner 3, 6-22-10, lcn abn. J. P. Evans et al's Crichton 1, 31-18-8w, dr 2450 ft. D. H. Coyle, Tr.'s, Frazier 1, ne se 27-23-11, dk.

WEST CARROLL PARISH—Ark. La. P. L. Co.'s Griffith 1, ne nw 17-22-10, dr 1320 ft.

ARKANSAS

Completions

MADISON COUNTY—
J. W. Baxter, Hallem 1, 17-16-26... * 540
SEBASTIAN COUNTY—
Lavaca O&G Co., Moore 1, 27-8-30w ¶3 1558

CHICOT COUNTY—H. R. Smith's Lytle 1, 31-18-3, cor 2880 ft.

CLAY COUNTY—S. C. Jeffus, Tr.'s Underwood 1, nw se 4-20-8, arr set 10-inch cas 240 ft.

CLEBURNE COUNTY — Cosden Oil Co.'s Donithan Lbr. Co. 1, 19-9-10, fsh tools 4360 ft. Donnell et al's Fee 1, 23-11-9, sd repr rig, 3410 ft.

COLUMBIA COUNTY—Sam Y. Dorfman's Merrick 1, 16-17-20, sd 2803 ft.

FRANKLIN COUNTY—Red Bank Oil Co.'s Hamm 1, 33-10-26, tested 3 to 4 mil ft gas top sand, fsh tools, td 3750 ft.

GARLAND COUNTY—H. H. Given's Garrett 1, 1-3n-19w, sd in lime repr rig, td 3750 ft.

HOT SPRINGS COUNTY—John Watkins, Tr.'s, Cunningham 1, 11-5-16, dk. Cleary Bros. et al's Hinson 1, 19-4s-16w, set 15½-inch cas 20 ft, 12½-inch cas 294 ft, 10-inch cas 405 ft, 8¼-inch cas 700 ft, sd cur titles, td 1290 ft.

JOHNSON COUNTY—Ark. La. P. L. Co.'s Kelly 1, sw sw 14-10-24, dr hard sand 1930 ft; Hudson 1, se ne 14-10-24, dr hard sand 1170 ft. Blackwell O&G Co.'s Wyver 1, 21-8-23, jarring out 6-inch cas 2100 ft, td 5600 ft. Conn Gables et al's Holing 1, 20-9-25, sd 2238 ft.

LA FAYETTE COUNTY—Crawford Drilling Co.'s Vaughan 1, 25-19-25, rig up.

LAWRENCE COUNTY — Marguerite Dev. Co.'s Broadway 1, 31-17-1, sd 45 ft.

LITTLE RIVER COUNTY—Buck Oil Co.'s Taafe 1, 25-12-32, sd 2505 ft.

LINCOLN COUNTY — B. F. Thompson, Tr.'s, McGhee 1, 8-8-7, sd partly rigged up.

LOGAN COUNTY—M. W. Greesom's Parks 1, 21-8-24, sd 1309 ft. J. H. Flowers' White 1, 13-5-26, ur 5 3/16-inch cas 3570 ft, td 3610 ft.

MADISON COUNTY—J. W. Baxter's Hallem 1, 17-16-26, dry, abn in gummy shale, td 540 ft; Hallem 2, cent Sec. 17-16-26, sp set 8-inch cas 22 ft, dr 175 ft.

MILLER COUNTY—E. & F. Oil Co.'s E. L. Beck 1, 36-15-26, tested dry thru ds 2805-11 ft, cor 2827 ft. Lenz et al's Dale 1, 25-15-26, old hole arr deepen, td 2842 ft; Johnson 2, 24-15-26, tested sw thru ds 2920 ft, arr set 6-inch cas. East Texas O&G Dev. Co.'s Harvey 1, 2-15-26, dr 200 ft. O'Mara et al's Person 1, 31-15-25, lcn. Big Hill Oil Co.'s Dean 1, nw sw 30-15-25, tested sw sd wo 3106 ft. Fitzwater et al's Beck 1, sw se 33-15-26, dk. Corley et al's Rose 1, ne ne 9-16-26, dk pat.

OUACHITA PARISH—Belmont et al's Dean 1, 16-15-17, cored oil sand 2726-30 ft, arr make ds test. A. B. Turner, Tr.'s, Brown 1, 23-15-18, topped Nacatosh 1663 ft, tested 55 joints mud with show oil thru ds 2172-78 ft, ds stuck, td 2183 ft. Graves et al's Walker Trustee 1, sw sw 9-14-18, top Nacatosh 1352 ft, tested 1 joint oil thru ds 1845-61 ft, in second ds test only mud and water due no seat for ds, set 6⅝ cas 1845 ft, td 1861 ft. Copenhaver et al's Elliott 1, se se 11-15-17, sp dr 50 ft.

PHILLIPS COUNTY—Mahon et al's Manheimer 1, 15-1s-1e, dr 200 ft.

PIKE COUNTY—Henderson et al's Tilyou 1, 26-8-24, show heavy oil 567 ft, dr 1270 ft.

POPE COUNTY—Ark. La. P. L. Co.'s McFadden & Brooks 2, ne sw 15-9-21, dr black shale 723 ft.

SCOTT COUNTY — Heavener O&G Co.'s Reser 1, 36-4-26, fsh tools, td 1530 ft. Ark. Valley Gas Co.'s Turner 1, se se 27-5n-30w, lcn.

SEBASTIAN COUNTY—M. W. Greesom's Spears 1, 9-7.29, tested sw, wo td 3515 ft. Mansfield Gas Co.'s Fee 1, 1-4n-31w, dr shale 1410 ft. Ozark Nat. Gas Co.'s Bates 1, 28-8-30, set 6⅝ cas 2144 ft, dr sand 2800 ft. Lavaca O&G Co.'s Moore 1, nw sw 27-8-30w, making 3 mil ft dry gas 250 lbs r.p., td 1558 ft; Davis 1, nw ne 29-8-30w, lcn.

UNION COUNTY—Hickman et al's Hogg 1, 35-16-17, top Graves sand 2351 ft, dr 2540 ft. Marine Oil Co.'s W. B. Thompson B-2, 10-18-13, lcn; P. Winn Est. F-1, 10-18-13, hole full fluid 50 per cent sw, arr blow with air, td 3604 ft, set 6⅝ cas 3595 ft. Rice et al's Whatley 1, 7-17-15, arr resume dr 92 ft. Malloy & Co,'s Burns 7, nw nw 31-17-15, arr set 8¼-inch cas 2148 ft. J. E. Crisbie, Inc.'s, et al's G. L. Murphy 1, 13-16-16 r to bottom td 2588 ft. H. L. Hunt, Inc's Swilley 5, ne ne 28-16-16, sp set 10-in cas 100 ft. Oilfields Corp's J. A. Simmons 1, nw nw 13-18-13, rig up.

WASHINGTON COUNTY — Taylor et al's Runny 1, 1-13-29, fsh tools 1005 ft. Lincoln Lease Holding Synd's Townsite 1, 30-15-32, ta 1500 ft. C. H. Willoughby's Jones 1, 34-16-30, sd 2150 ft. O'Hara & Shetterley's Boyd 1, 12-16-32, ta 850 ft. Delbert Graves' Cunningham 1, 14-15-32, sd in gray sand 602 ft.

VAN BUREN COUNTY — J. S. Maryin's Scanland 1, 5-9-13, sd 50 ft.

YELL COUNTY — T. Luckett's Balcon 1, 36-7-21, fsh tools td 5710 ft.

MISSISSIPPI

Completion

RANKIN COUNTY (Jackson Dist)—
Southern Pet. Co., Investment 1, 12-5-1e . ..... ¶50 2390

ALCORN COUNTY — Alcorn Pet. Co.'s Matthews 1, 14-2s-7e, fsh junk, td 2735 ft.

CLAY COUNTY—Ohio Oil Co.'s Cantrell 1, ne ne 16-15-5e, elev 270 ft, set 13⅜-in cas in gravel 1389 ft.

CHICKASAW COUNTY — Hightower & Golson's Fleming 1, 30-13-3e, driving 8¼-in cas at 1495 ft.

GRENADA COUNTY — Carter Oil Co.'s Dubard 1, nw nw 18-22-4e, dk.

HINDS COUNTY (Jackson Dist.)—Mrs. Ella Rawls Reeder's State Land 1, 26-6-1e, sd 2905 ft. Jackson O&G Co.'s Central Cotton 1, 3-5-1e, dk. Mayes 1, 2-5-1e, plugged back to 2450 ft, re-cemt cas, old td 2585 ft. Love Pet. Co.'s Morton 1, 34-6-1e, dk. Maley 1, se nw 15-5-1e, elev 257.5 ft, topped Midway shale 2387 ft, topped Midway chalk 2487 ft, set 6⅝-in cas 2487 ft, dr in, td 2490 ft. Love Prod. Co.'s Crisler 1, nw sw, 2-5-1e, topped Midway shale 2373 ft, elev 269 ft, set 6⅝-in cas top chalk 2468 ft, making 8-10 mil ft gas 2000 bbls sw, show oil through 1-in tube, td 2485 ft. Miss. Tex. Oil Co.'s Negro Fair Assn. 1, nw se, 28-6-1e, sd in sand and shale 1902 ft, cure titles. Tri-State O&G Co.'s Wilson 1, 23-6-1e, dk. Universal O&G Co.'s Holliday & Ross 1, 8-6-2e, ta 2653 ft, Sharbrough 1, 28-6-1e, set 10-in cas 88 ft, wo. Miss. Pet. Co.'s Solvent Inc. 1, sw sw 14-5-1w, dr hard lime rock 2272 ft. Baptist Orphanage 1, se se 28-6-1e, dr lime rock 2369 ft. La Fleur O&G Co.'s Chadwick & Brown 1, sw nw 11-5-1e, top Midway shale 2344 ft, set 6⅝-in cas 2424 ft in shale, elev 261 ft, dr in. Hawkeye Gas Co.'s Webster 1, ne nw, 15-5-1e, dr rock 1485 ft, elev 269.6 ft.

JASPER COUNTY (Bay Springs Dist.)—Bay Springs Pet., Inc.'s J. H. Keyes 1, nw ne 21-2n-10e, dk.

KEMPER COUNTY (De Kalb Dist)—W. W. Jones' Rosenbaum 1, lcn not given, dk.

LA FAYETTE COUNTY—F. E. West et al's May 1, 22-10-1w, rigged up wo.

MADISON COUNTY (Jackson Dist.)—Miss. Pet. Co.'s Raymond 1, nw sw 32-7-2e, set 12½-in cas in blue gbo 706 ft, wo.

MONROE COUNTY (Amory Dist.)—Amory Dev. Co.'s Bourland 1, 2-13-19, bailer recover, resumed dr 2912 ft. Park Bowser's Cowart 1, 2-12-19, sd 85 ft. Associated Royalties' School Board 1, 16-15-17w, sd 60 ft. Amory Pet. Corp.'s Harris 1, nw nw 18-13s-17w, lcn. Carter 3, se se 7-13s-17w, rig up.

RANKIN COUNTY (Jackson Dist.)—Jackson Royalties, Inc.'s Pate 1, sw se ne 12-5-1e, sp, set 12½-in cas 280 ft, dr 700 ft. Sabine O&G Co.'s Rankin Dev. Co. 1 (formerly carried Fee 1), sw ne 6-5-2e, dk. Love Pet. Co.'s Moore 1, 28-6-2e, sd 900 ft. Southern Pet. Co.'s Investment 1, 2170 n and 1790 w sec 12-5-1e, elev 269.5 ft, topped Midway shale 2316 ft, topped Midway chalk 2384 ft, set 6⅝-in cas 2385 ft, est 50 mil ft gas, td 2930 ft. Millsetin O&G Co.'s Hartfield 1, se ne 12-5-1e, wo 5 3/16-in cas to run in 6⅝-in cas at 2050 ft, td 2361 ft. Gulf Ref. Co.'s Hamilton Est. 1, sw sw 4-5-2e, elev 284 ft, sp, setting 15½-in surface cas. Love et al's Brown 1, se se 12-5-1e, rig up. Pearl River O&G Co.'s Pate 2, se se 12-5-1e, rig up.

WARREN COUNTY (Vicksburg Dist.)—Vicksburg O&G Co.'s Dornbusch 1, 8-18-15, sd 90 ft.

WEBSTER COUNTY — Cumberland Oil Co.'s Henley 1, 15-21-11, ta 1865 ft.

WINSTON COUNTY (Louisville Dist.)—Mississippi Drilling Co.'s Scarbrough 1, nw nw 15-13n-14e, sp, arr set 15½-in cas 225 ft.

YALABOUSHA COUNTY (Water Valley Dist.)—J. D. Collett et al's Blackmer 1, se nw 14-11-4w, fsh junk, td 2434 ft.

ALABAMA

HOUSTON COUNTY—J. R. Sealey et al's Fee 1, 13-1n-27e, changing from cable tools to rotary, td 3100 ft.

LAUDERDALE COUNTY—P. J. McAlpine's O'Neal Hrs. 1, 8-2s-13w, sd in white limestone, td 2525 ft.

MORGAN COUNTY—Albany-Decatur O&G Co.'s English 1, 6-6-4, fsh for cas, td 4130 ft.

SUMTER COUNTY—B. W. Bates' Fee 1, 3-18-1w, ta 1200 ft. Fee 2, 3-18-1w, rig up wo.

WASHINGTON COUNTY—Hobson et al's Wilson 1, 21-7-1w, sd in limey shale 881 ft. Hobson Bros. 1, 9-8-2w, sd 1450 ft. Oscar Brown's U. S. Land & Cotton 2, 25-3-2w, sd 700 ft.

TENNESSEE

DECATUR COUNTY — Chester County O&G Co.'s Montgomery 1, topped sand 1920 ft, dr sand 1961 ft.

OKLAHOMA

WOODS COUNTY—T 27n R 16w, Sec. 33, Sinclair Oil & Gas, share 1, c ne sw, show oil 7137, 38½ ft hfw 7160 ft td 7280 ft pb to 6736 ft, shot 30 qts mud and water in hole co.

ALFALFA COUNTY—T 27n R 11w, Sec. 12, Smith Bros., Forbes 1, nec se nw nw, td. 1420 ft sd.

KAY COUNTY—T 27n R 2e, Sec. 17, Blankenship et al Hansen 1, sw nw sw, wtr. 3612-16 ft, pb and shot 10, 20, 40 qts at 3587 to 3597 ft, pumps 51 bbls. in 11 hrs.

HARPER COUNTY—T 26n R 24w, Sec. 14, Sinclair Oil & Gas, Howell 1, c sw sw; td 8590 ft pb 6700 ft, shot 5 qts 5300-5340 ft, ¶12 gas, 50 bbls gasoline.

GRANT COUNTY—T 26n, R 5w, Sec. 25, Bu-Vi-Bar et al Hurst 1, C sw, show O. G. & W. 5215-18 ft, dlg 5880 ft.

KAY COUNTY—T 26n, R 1w, Sec. 32, Boucher et al Jefferson 1, nec sw, drlg 1070 ft.

HARPER COUNTY—T 25n, R 20w, Sec. 12, Empire Bruce 1, swc, ne ne sw; drlg 6788 ft.

WOODS COUNTY—T 25n R 15w, Sec. 10, Bu-Vi-Bar et al Fee 1, Sec. sw, sd 6104 ft.

GRANT COUNTY—T 25n R 4w, Sec. 22,

Cowden No. 2 Bollmer, nec se ne sw, sd 5640 ft.

ALFALFA COUNTY—T 24n R 11w, Sec. 14, J. V. Bailey et al Acres 1, c sw ne, sd, 4660 ft.

GARFIELD COUNTY—T 24n, R 6w, Sec. 9, Pulse & Beamer et al White 1, sec nw; drlg on bailer 5721 ft.

WOODWARD COUNTY—T 23n R. 17w, Sec. 23, Transcontinental & Prairie, Wilbur 1, nec, sd 7425 ft.

NOBLE COUNTY—T 21n, R 1e, Sec. 12, Barnsdall et al Minch 1, nwc sw, Fish 1825 ft.

BLAINE COUNTY—T 19n, R 10w, Sec. 13, Washoma Pet. Co. Phillips 1, c nw sw, sd 3830 ft.

LOGAN COUNTY—T 18n, R 3w, Sec 33, Healey et al Quier 1, sec sw, sd 3970 ft.

LOGAN COUNTY—T 17n, R 4w, Sec. 34, Eason Oil Co. Katcher 1, sw ne sw, rust 4918 ft, core show oil.

T 17n, R 2w, Sec. 24, Slick, Ramey & Prairie Jones 1, c se nw, drlg 4952 ft.

T 17n, R 1e, Sec. 22, Slick & Prairie, Simms 1, ne sw se, td 5005 rust.

KINGFISHER COUNTY — T 16n, R 7w, Sec. 6, Gault Brown, Boch 1, c nw se, (owdd), cored 6022 ft, drlg 6309 ft.

LOGAN COUNTY—T 16n, R 1w, Sec. 33, Slick & Prairie, Morgan 1, c nw ne, drlg. 5716 ft, 1500 water.

KINGFISHER COUNTY — T 15n, R 5w, Sec. 23, Slick & Prairie, Wright 1, c nw sw; td 5080 w o c.

PAWNEE COUNTY—T 23n, R 5e, Sec. 15, Cochran et al, McFadden 1, nec sw, rig.

T 22n, R 3e, Sec. 1, Flynn, Morgan et al, Freeman 1, nwc, drlg 1900, Sec. 22, J. M. Scott et al Jones 1, swc ne, show oil 3355-3440 ft, drlg 3622 ft.

LINCOLN COUNTY—T 14n, R 6e, Ses. 5, Atlantic Oil Prod. Co., Ryan 1, sec nw, drlg. 4591 ft.

OKFUSKEE COUNTY—T 12n, R 9e, Sec. 36, Henry Oil Co, Harjo 1, nwc, Wilcox 4170-80, show water.

T 12n, R 10e, Sec. 3, Sheppard et al, Sheppard 1, se nw sw, water 3690 ft, sd.

MUSKOGEE COUNTY—T 11n, R 19, Sec. 21, E. Mills et al C. J. Martin 1, nwc se, sd 1001 ft.

PITTSBURGH COUNTY — T 8n, R 14e, Sec. 14, C. D. Cannady, Smith 1, nwc, rig.

T 7n, R 13e, Sec. 18, Apex Oil Co., Walker 1, nwc se, drlg 300 ft.

OKLAHOMA COUNTY—T 14n, R 3w, Sec. 32, Mid-Kansas et al Messer 1, swc, ts 6495 ft, Wilcox 6698-6771 td flow 450 bbls, shot 90 and 170 qts co.

OKLAHOMA COUNTY—T 11n, R 2w, Sec. 3, Ryan Consol Co., Lawton 1, nec nw, td 6902 ft, pb 6300 ft shot 45 qts, drlg by.

CLEVELAND COUNTY—T 6n, R 1e, Sec. 20, Harris & McNeal Corbett 1, c sw ne, td 6518 ft, bailed small show oil sd.

OKFUSKEE COUNTY—T 11n, R 8e, Sec. 11, Carter et al, Keys 1, sw ne sw, fish 6-in 3495 ft.

POTTAWATOMIE COUNTY—T 10n, R 4e, Sec. 10, Shell Baker 1, nwc se, lcn.

SEMINOLE COUNTY—T 10n, R 6e, Sec. 19, Bunte et al, Bruner 1, sec nw, cellar.

HUGHES COUNTY—T 9n, R 12e, Sec. 29, Cannady Kanard 1, nwc sw, ts 4468-4506 ft hfw, pb 3540 ft sd.

POTTAWATOMIE COUNTY—T 8n, R 3e, Sec. 3, Texas Knight 1, swc se, 6-in c 5115 ft.

T 8n, R 4e, Sec. 11, Lippa et al, Helmerich 1, nec nw, drlg 4272 ft.

T 7n R 3e, Sec. 19, Droppleman et al, Fundis 1, sec ne, drlg 2380 ft.

T 6n R 5e, Sec. 5, Robinson et al, Crouch 1, nwc sw, rig.

SEMINOLE COUNTY—T 6n, R 7e, Sec. 9, Neal & Milton, Thomas 1, nwc ne sw, drlg. 1880 ft.

ROGER MILLS COUNTY—T 13n, R 21w, Sec. 10, Richfield, Hiatt 1, sec, rig.

ROGER MILLS COUNTY—T 12n R 24w, Sec. 23, Buoy & Stone, Williams 1, c sw, sd, 2243 ft.

BECKMAN COUNTY—T 10n, R 22w, Sec. 29, J. F. Cuniff et al, Brower 1, c nw, 3793 ft, Dry & abnd.

CANADIAN COUNTY—T 10n, R 6w, Sec. 1, J. V. Bailey, Robinson 1, c ne nw, sd 150 ft.

CADDO COUNTY—T 9n, R 13w, Sec. 18, J. J. Wright et al, Boys 1, nec, lcn.

BECKHAM COUNTY—T 8n, R 22w, Sec. 20, Carson et al, Denby 1, sw se ne, sd, 1554 ft.

GREER COUNTY—T 7n, R 22w, Sec. 1, Good & Dowell, Cliffell 1, nwc, sd 1265 ft.

T 7n, R 21w, Sec. 23, H. A. French et al, Murph 1, sw nw se, td 400 ft, drlg by tools at 350 ft.

CADDO COUNTY—T 6n, R 11w, Sec. 24, Simms Pet. Co. et al 1, sec nw, drlg 1035 ft.

HARMON COUNTY—T 4n, R 24w, Sec. 17, Harmon-Tex. Oil Co., Headley 1, nec, drlg. 2455 ft.

COMANCHE COUNTY—T 3n, R 9w, Sec. 3, Oklahoma Nat. Gas Co., Doebel 1, nec sw sw sw, sd 1450 ft.

HUGHES COUNTY—T 5n, R 10e, Sec. 30, A. V. Erwin, Jones 1, sec ne, sand 4270-75 ft rust.

T 5n, R 11e, Sec. 15, J. J. Wright, Roberts 1, sec sw, ¶2 gas 915-18 ft, hfw, sd 1645 ft.

GARVIN COUNTY—T 4n, R 3e, Sec. 10, C. R. Obermeryer, Stricklin 1, nec sw, sand 2747-65 ft, td 2880 pb to 2607 ft co, show oil.

T 3n, R 4w, Sec. 5, McMin & Arrowsmith, Carson 1, nec nw, 3026 ft dry and abnd.

COAL COUNTY — T 3n, R 9e, Sec. 26, Blackwell, Bumm 1, nwc, drlg. 4250 ft.

ATOKA COUNTY—T 3s, R 10e, Sec. 18, Brookshire et al, Guinn 1, nwc, sd 80 ft.

CARTER COUNTY—T 4s, R 2e, Sec. 32, Tex-Okla. Drilling Co, Anderson 1, se ne se, drlg by, td 2580 ft.

CARTER COUNTY—T 4s, R 2e, Sec. 32, Tex-Okla. Drilling Co., Anderson 1, se ne se, drlg. by td 2580 ft.

LOVE COUNTY—T 6s, R 3w, Sec. 20, Harry Hobbs, Steele 1, swc ne ne sw, sd 3130 ft.

BRYAN COUNTY—T 6s, R 7e, Sec. 8, Geo. L. Pace, Hicks 1, swc nw, drlg. 1503 ft. Sec. 14, W. A. Johnson, Ussery 1, sec, sd 325 ft.

BRYAN COUNTY—T 6s, R 9e, Sec. 35, O. P. Bush 1, Commerce Trust Co., nec, sd 600 ft.

KANSAS

STEVENS COUNTY—Liberal Gas, Unknown 1, c n½ ne, 4-35-34w, rig.

SUMMER COUNTY—Davidson et al, Strickland 1, sw s e 12-34-1w, rig.

MORTON COUNTY—Hydraulic Oil Co., State Land 1, nw se 22-34-43w sd 3200 ft; Argus Gas Co., Forward Fee 1, c ne, 5-34-38w, 8″ 2542 ft, 2575 ft.

STEVENS COUNTY—Argus Gas Co., Burrows 1, c s w, 31-34-37w, dr 2446 ft. Argus Gas Co., Jester 1, c nw, 7-34-37w 8″ 2608 ft rust.

HARPER COUNTY—Atkinson et al, Misak 1, se c 25-32-6w, dr 3677 ft.

SUMNER COUNTY—Disney et al, Foy 1, c e½ se 14-34-1w, rig.

STEVENS COUNTY—Western Prod., Fee 4, c ne, 6-33-36w, rig.

SUMNER COUNTY—Magnolia, Shriner 1, nw sw, 9-33-2e, 10″ 1981 ft, 8″ 2667 ft dr 2930 ft.

CHAUTAUQUA COUNTY—Leighty et al, Helmick nw se sw ne 5-33-9e, mach.

STEVENS COUNTY—McNabb & Mid-Kansas, Rinehart 1, c ne 23-32-39w, rig; Mangle, Youngren 1, c se nw, 24-32-39w, sd 2523 ft; Argus Gas Co., Olsen 1, c se, 1-32-38w, 81inch 2356 ft rust.

COWLEY COUNTY—Tom Fine, Boyd 1, nw ne, 32-32-4e, 12″ 1265 ft sd 2650 ft; Roth & Farout, Reidy 1, c sw nw ne, 8-32-4e, td 912 ft fsg blr.

HARPER COUNTY—Beeler et al, Bear 1, c ne, 21-31-6w, td 1830 ft sd.

KIOWA COUNTY—Phillips-Prairie, Bean 1, ne se 10-30-17w, 3950-55 ft hfw, 4115 ft, dr 4230 ft.

BARBER COUNTY—Allison & Fitzwilliams, Kumberg 1, c se s w se, 2-30-12w, 8″ 3540 ft 3920 ft.

STANTON COUNTY—Argus Gas Co., Plummer 1, c ne, 11-29-41w, dr 1825 ft.

GRANT COUNTY—McKenna et al, Sullivan 1, ne c, 12-29-28w, spd and sd.

SEDGWICK COUNTY—Buck et al, McNanaman 1, c ne nw nw 2-29-1e rig.

ELK COUNTY—Alladin, Donnell 1, ne se sw, 26-29-10e dr 2129 ft.

KIOWA COUNTY—McKenna et al, Ralston 1, c ne, 14-28-20e, ru sd.

BUTLER COUNTY—Farrell et al, Sutter 1, nw c 18-28-7e, sd 830 ft.

KINGMAN COUNTY—Skelly, Miles 1, ne c, 30-27-10w dr 1550 ft.

FORD COUNTY—McNabb et al, Fowler 1, c se, 26-27-22w, td 400 ft sd.

GREENWOOD COUNTY—F. Konkay et al, Rook 1, nw ne ne 7-27-12e, td 1836 ft sd.

PRATT COUNTY—Wilcox, Unknown 1, sw nw 7-26-15w, td 4395 ft hfw, csg trbl.

RENO COUNTY—Valerius, Stevens 1, c ne se ne 6-26-7w, T. Wilcox 4196 ft 4230 ft hfw sd 4266 ft.

BUTLER COUNTY—National Refining Co., Settergren 1, nw c, 32-26-4e, td 2280 ft reaming.

FORD COUNTY—Swain et al, Kenthorn 1, c nw, 21-25-24w, 6-inch 3775 ft, dr 3900 ft.

RENO COUNTY—Shell et al, Popp 1, nw c 11-25-5w, 2970 ft.

GREENWOOD COUNTY—Staats et al, Swan 1, ne nw 3-25-12e, spd and sd.

BUTLER COUNTY—Empire & McCullough, Lilley 1, c sw nw nw, 33-23-5e, dr 600 ft.

STAFFORD COUNTY—Boucher, Groves 1, ne c 9-22-11w td 2665 ft, 8″ 2735 ft, 6″ 2965 ft dr 3056 ft.

RENO COUNTY—Alco Royalty Co., Kinney 1, se c 16-22-7w, sd 2980 ft; Braden et al, Theisen 1, se ne 6-22-4w, dr 2430 ft.

MARION COUNTY—Maidwell, La Master 1, nwc, 31-22-4e, roc.

COFFEY COUNTY—Hegberg et al, Kroft 1, se sw se, 30-22-14e dr 310 ft; McGregger et al, Wood 1, c ne nw sw 20-22-15e, sd 650 ft; Roberts et al, Hay 1, sw se nw 32-22-15e, sd 650 ft; Roberts et al, Hay 1, sw se nw 32-22-15e, dr 1125 ft.

RICE COUNTY—United Pet. Co., Wellman 1, ne c 29-21-9w, 10″ 2090 ft sd 2455 ft.

MARION COUNTY—Magnolia, Davis 1, se nw 18-21-2e, 8″ 2700 ft dr 3128 ft.

PAWNEE COUNTY—Phillips, Cuthberson 1, c ne 27-20-18w, dr 1015 ft.

BARTON COUNTY—McCool et al, Tsern 1, c sw se ne 12-20-11w, 12″ 900 ft sd 1600 ft; McPherson et al, Kans 1-A, se sw 11-20-Sw, dr 550 ft.

RICE COUNTY—Perry et al, Unruh 1, c se ne se 27-20-2w, lcn; Skelton Oil, Ott 1, c se se, 16-19-14w, rig.

MARION COUNTY—Marshall et al, Higgens 1, ne c 33-19-5e, rig.

LYON COUNTY—Griffith et al, King 1, nw c 8-19-10w, 12″ 910 ft sd.

RUSH COUNTY—Syndicate Oil, Tannen 1, c sw 11-19-16w, lcn.

RICE COUNTY—Jasper & Beschka, Cupp 1, sw ne, 22-18-9w, rng 12″ td 1533 ft.

McPHERSON COUNTY—Alladin Pet. Larson 1, c nw, 22-18-4w, rog.

RUSH COUNTY—McPherson, Brack 1, c nw, 24-17-16w, td 3980 ft fsg tools.

ELLSWORTH COUNTY—Slick et al, Hecken 1, nw c 24-17-10w, 6″ 3001 dr 3048 ft.

McPHERSON COUNTY—Slick et al, Sandell 1, c sw sw, 35-17-3w, rig.

RUSH COUNTY—Prairie, Leiker 1, c nw sw sw 5-16-13w, 3337-52 ft, 1400 ft O. I. H. exhausted on swab and hfw, dr 3460 ft.

ELLSWORTH COUNTY—Alladin & Marland , Barecky 1, c nw, 3-16-10w, dr 205 ft.

MORRIS COUNTY—Urschell et al, Scott 1, ne sw 6-16-6e, sd 2420 ft; Pratt et al, Whiting 1-A, nw sw sw 24-16-6e, sd 350 ft; Hankenson et al, Sessnum 1, sw se 24-16-9e, rig.

ELLIS COUNTY—Rush Oil Co., Gatewood 1, nw 4-15-20w, sd 3825 ft.

RUSSELL COUNTY—Empire, Sherwood 1, c se nw nw 21-14-13w, dr 340 ft.

ELLSWORTH COUNTY—Milton et al, Kester 1, se ne 6-14-9w, spd.

OSAGE COUNTY—Riggs & Smith, Wood 1, c se nw 21-14-15e, sd 410 ft.

DOUGLAS COUNTY—Steinbushel et al, Unknown 1, sw ne nw 34-14-21e, td 1110 ft sd.

GOVE COUNTY—Valerius et al, Todd 1 nw c 24-13-27w, 6″ 4174 ft dr 4410 ft.

RUSSELL COUNTY—Austin Drlg. Co., Rockefeller 1, se c 6-13-12w, drg 2710 ft.

SALINE COUNTY—Twin Mounds Oil Co., Weiss 1, c w½ ne nw 20-13-4w, td 2125 ft sd.

DICKINSON COUNTY—Seevers et al, Lerningood 1, ne sw 13-13-2e, dr 2410 ft dr 2410 ft.

GOVE COUNTY—Johnson & Atlantic, Wright 1, c se ne 11-12-27w, dr 1259 ft.

PAWNEE COUNTY—Central Commercial, Helms 1, se ne 2-12-20w, dr 3916 hfw.

DICKINSON COUNTY—E. H. Morgan, Whitehair 1, nw se 9-12-1e, T. Viola 2910 ft 5″ 3103 ft, sd 3340 ft.

RUSSELL COUNTY—Gilbreath et al, Bratton 1, c ne 33-11-13w, sd 2155 ft.

ROOKS COUNTY—Streeter & Stearns, Conger 1, c se nw ne, 16-10-16w, sd 2275 ft.

CLAY COUNTY—Chrisler, Tivier 1, sw c 19-8-3e, spd and sd.

MARSHALL COUNTY—Swicker & Simcox Remple 1, c n½ nw 22-4-9e, sd 1245 ft.

WASHINGTON COUNTY—Simcox, Penwell 1, nw se ne 16-3-3e, sd 510 ft.

MARSHALL COUNTY—Blazier et al, Runkel 1, se nw 13-2-6e, spd and sd.

NEBRASKA

FURNAS COUNTY—Graham Bros., Edwards 1, nw sw, 13-2n-22w, sd 3250 ft; Southwestern Pet. of Nebraska, Montague 1, se sw sw 28-1n-22w, sd 1750 ft.

SOUTHERN CALIFORNIA

Completion

PUENTE HILLS—
Bardeen Pet. Corp.'s Didier 1..... * 5000

ATHENS—McKeon Oil Co.'s No. 1, rigging up rotary.

CORONA—Western Gulf's Abacherli 1, rig.

COMPTON — Central Heights Oil Co.'s Veach 1, re-dr 2500 ft.

DOMINGUEZ—Tenacity Oil Co.'s Del Amo 1, sd, plugged to 8490 ft; td 8575 ft.

FULLERTON — Standard's Bastanchury 1, re-dr shale 6820 ft.

HERMOSA — California Ventura Oil Co.'s Holston 1, pumping 30 bbls. oil; Sadler 1, dr 200 ft.

LA HABRA—Union's Sansinena 11, bailing oil and water, td 4810 ft.

LOS ANGELES-ALHAMBRA—Fred Hammer's No. 1, rig.

MINT CANYON—Widney, Widney & Miller's No. 1, lcn.

NEWHALL—Consolidated Oil Co.'s Hammond 1, running liner to test, td 2236 ft. Dudley-Newhall Synd.'s No. 1, dr 1560 ft. M. K. T. Oil Co.'s Farrier 1, dr hard sand 818 ft. National Securities Co.'s Seeple 1, dr shale 2115 ft. Southern California Drilling Co.'s Needham 4, dr shale 2990 ft. Olympic Oil & Realty Co.'s No. 1, dr shale 3263 ft.

NEWPORT—Standard's Irvine 1, dr shale 2300 ft.

PLAYA DEL REY—West Port Oil Co.'s No. 1, dr shale 3750 ft. Olympic Oil & Realty Co.'s No. 1, dr shale 3266 ft.

POMONA—Lamona Oil Assn.'s No. 1, dr granite 944 ft.

PUENTE HILLS—Arden Oil Co.'s Bidart-Rowland 1, dr 2900 ft. Marcell Pet. Co.'s Marcell 1, dr shale 2950 ft. Rio Hondo Pet. Corp.'s Rowland 1, swabbing water and oil, td 3725 ft. Western Gulf's Diamond Bar 1, dr hard sand 6755 ft.

SAN FERNANDO—Shell's Andrews 1-1, dr hard sand and shale 5105 ft.

SANTA FE SPRINGS—Union's Orchardale 1-1, dr shale 5040 ft.

SAN JUAN CAPISTRANO—Okay No. 2's Foster 2, dr shale 4606 ft.

NORTHERN CALIFORNIA

Completion

POINT CONCEPCION—
Universal Consolidated Oil Co.'s
Concepcion 1 30-5-34 ..... * 4995

KERN COUNTY

ANTELOPE VALLEY—Meridian Oil Co.'s No. 1, 11-9-15, dr shell 3450 ft.

BELRIDGE—K. C. Wallace's No. 1, 32-29-21, dr shale 3748 ft. Richfield's Belridge 1, 22-27-20, dr shale and gas sand 5015 ft. Ohio's Bloemer 1, 22-27-20, lcn. Belridge Oil Co.'s Fee 15, 26-27-20, flowing 2600 bbls. 47 gravity oil and 50,000,000 cu ft gas, td 5457 ft; discovery well in deep zone, although located within proven shallow field.

BUENA VISTA HILLS—Federal Drilling Co.'s No. 1, 20-31-24, 16-in cas cmt 850 ft.

BUTTONWILLOW — Nordon Oil Corp's Salisbury 1-A, sdtr drill pipe 5065 ft.

DEVILS DEN—Standard's Alferitz 1, 14-25-18, rigging up rotary.

EDISON—Petroleum Securities Co.'s Johnson-Moss 1, 14-29-29, dr hard sand 2850 ft.

PATTIWAY—H. A. Bardeen's Ramsey 1, 10-10-23, dr hard sand 4065 ft.

SEMITROPIC—Shell's Williams 1, 17-27-23, dr shale 6525 ft.

SHALE HILLS—Rio-Cal Pet. Co.'s No. 1, dr hard brown shale 1978 ft.

WEED PATCH — Shell's Porter-Day 1, 29-30-29, will deepen from 5408 ft, produced oil at 125-bbl rate; Porter 1, 29-30-29, lcn; Wharton 1, 32-30-29, lcn.

SANTA BARBARA COUNTY

CAMPBELL'S POINT — Bolsa Chica Oil Corp.'s Augur 191-1, 24-4-9, dr shale 2466 ft.

GATO RIDGE—Barnsdall's Tegnazzini 1, 9-8-32, dr shale 4550 ft.

GOLETA—General Pet.'s More 3, dr hard shale 2378 ft. George W. Johnson's Duncan 1, co 3300 ft, td 3970 ft.

LOMPOC—Prairie's Shyvers 1, 11-7-35, dr hard sand 5600 ft.

LOS ALAMOS—N. S. Wilson's No. 1, 2-7-33, dr hard shale 616 ft.

ORELLA—General Pet.'s Erburu 8, 32-5-30, dr gray sand 1928 ft; Erburu 9, lcn; Erburu 10, lcn.

POINT CONCEPCION—Standard's Garber 1, dr hard gray sand 6420 ft.

PURISIMA — Vaqueros-Major Oil Co.'s Union Annex 2, 6¼-in cas cmt 2640 ft, td 3210 ft; Union Annex 3, rigging up; Union Annex 4, lcn.

SANTA MARIA—O. C. Field Gasoline Co.'s Norswing 1, 8-9-33, dr shale and oil sand 5510 ft; Bradley 1, co 5267 ft. Western Gulf's Bradley 1, 5-9-33, dr shale and oil sand 3550 ft.

VENTURA COUNTY—

HOPPER CANYON—Rio Grande Oil Co.'s Lankershim 1, 13-4-19, co 1820 ft.

LOCKWOOD VALLEY—Lockwood Valley Oil Co.'s No. 1, 32-8-21, rigging up rotary.

PIRU — A. N. Macrate's Torrey-Eureka 1, 32-4-18, rigging up rotary.

RINCON — Chanslor-Cranfield Midway Oil Co.'s Hobson A-2, 23-3-24, fsh for drill pipe 7521 ft.

SANTA MONICA MOUNTAINS—Olympic Corp.'s Calabasas 1, 18-1-17, fsh for drill pipe 5675 ft.

SANTA PAULA—California Republic Pet. Corp.'s No. 1, 23-4-21, rigging up. George C. Thompson's No. 1, 15-4-21, running cas, td 2303 ft.

SESPE — Superior's Kirtlan 1, 15-4-21, dr hard sand 1300 ft.

SOMIS — Shell's Everett 1, plugging back from 3315 ft to 540 ft.

SOUTH MOUNTAIN — Ring Pet. Corp.'s Converse 1, rigging up to deepen from 4910 ft.

VENTURA—Prairie's Sexton 1, 30-3-22, sr to cmt 9-in cas, td 5718 ft.

MISCELLANEOUS

Petroleum Securities Co.'s Gatchell 1, 28-20-16, lcn. Associated's Mitchell 1, drilling water well.

KINGS COUNTY—Friend and Fiske's No. 1, 11-23-19, dr shale 1000 ft. Knudsen and Smith's No. 1, 36-23-17, lcn. J. E. O'Donnell's Brennan 1, 18-23-20, new lcn.

MENDOCINO COUNTY—Twin State Oil Co.'s Soldani 1, 14-12-17, dr 4575 ft.

MONTEREY COUNTY — Standard's Piedmont 1, 23-22-7, dr gray sand 5600 ft.

SAN LUIS OBISPO COUNTY — C. J. Schilling's Potter 1, 1-29-12, dr shale 615 ft. Continental's Hellman 1, 26-25-11, rig. Pismo Dome Oil Co.'s Pricco 2-A, 5-31-13, running 8⅝-in cas, td 2985 ft. Texas Pacific Coal and Oil Co.'s No. 1, 25-32-14, dr shale and gray sand 4400 ft.

TULARE COUNTY — Big Four Drilling Co.'s No. 1, 29-23-27, pulling 6¼-in cas, td 4330 ft. Blue and Weller's Martin 1, 27-22-27, rig. Campbell Oil Co.'s No. 1, 22-22-27, dr oil sand 855 ft, will test. Cummings Pet. Corp.'s No. 1, 27-22-27, dr coarse sand and shale 800 ft. Jennings Synd.'s McMasters 1, 8-23-28, fsh 470 ft. Kettleman East Side Trust's No. 1, 21-22-27, dr sand and shale 440 ft. Larson Oil Co.'s Best 1, 11-23-27, dr hard shale 1000 ft. Paul M. Lewis' No. 1, 15-22-27, dr shale 1010 ft. Mills and Wilson's No. 1, 35-22-27, pumping water and trace oil, td 913 ft. Rayatt Oil Co.'s Hinshaw 1, 34-22-27, dr shale 978 ft. Terra Bella Drilling Co.'s Rusling 1, 34-22-27, trying for water shutoff with 6⅝-in cas, td 925 ft. Terra Bella Oil Co.'s Gardiner 1, 35-22-27, pumping oil and water, td 918 ft. Turk and Campbell's Nevins 1, 34-22-27, dr oil sand 1100 ft. United Kern Pet. Co.'s No. 1, 34-22-27, dr oil sand 960 ft. Western Oil and Exploration's Gardiner 1, 35-22-27, pumping water and oil, td 1022 ft. Inland Valley Oil Co.'s Smith-Rea 1, 24-17-24, 8¼-in cas re-cmt 1815 ft, td 2060 ft.

YOLO COUNTY—George F. Getty's Guinda 1, 23-12-3, dr hard sand 2022 ft.

MONTANA

BIG HORN—Embar Dr. Co., 21-6s-36e, to dd from 3056 ft.

BROADWATER — Barth et al, near Winston, to res at 1000 ft.

CASCADE—Andover Oil Co.'s Floweree 1, se 20-21-2w, resum. td 300 ft.

CHOTEAU—Coolidge & Coolidge, se 32-26-17e, Lehnfelt 1, sd 50 ft. Williston Shelby O. & G. Co., Flack 1, se 12-28-11e, resume 2760 ft.

FERGUS—Melton Corps. 1, se 24-21s-17e, dr bel 2800 ft. Northern States Oil Co.'s Woodward 1, se 20-14n-24e, dr 150 ft.

GLACIER — Glacier Oil Co.'s Omsberg 1, nw 33-35-5w, dr up bailer 2585 ft. Texas Prod. Co. 1, 13-35n-6w, dr 2780 ft. Fulton Pet. Corp's Blackfeet 1, ne 28-36n-12w, dr 800 ft. O'Neil's Michaelson 1, se 28-36-5w, dr 600 ft. B. & H. Oil Co.'s Haines 1, se 2-34-6w, wait for pipe 400 ft. Jefferies-Hoerr's Dawson 1, ne 7-31-12w, dr 2150 ft.

GOLDEN VALLEY—Golden Valley Oil Co. 1, se 28-6-22, td 1400 ft. Texas Pacific 1, sw 21-8s-21e, dr bel 1600 ft.

LIBERTY—Northland O. & G. Co.'s Yurman 1, 36-33n-6e, dr 3120 ft. Sunburst O. & R. Co.'s McLaren 1, se 9-37-6e, dr 2085 ft. Utopia Oil Co.'s Eleanor Ass'n 1, sw 11-33-6e, sd 3190 ft. Perkins et al, Brown 1, nw 24-35-4e, sc surf. water 150 ft. West Nat'l Gas Co. 1, ne 23-37-4e, rigging.

MUSSELSHELL —Minn.-Flatwillow's Ivanhoe Dome 1, 7-11-31, set cas 1219 ft. Laffea Oil Co., 6-10n-25e, dr 900 ft.

PETROLEUM—Minn.-Flattwillow 2, 5-13n-25e, rig burned, td 1840 ft. Oregon-Flatwillow 1, 3-13n-26e, good show in first Cat Creek, will drill deeper.

PONDERA—Miller Bros.'s Bruins 1, nw 17-28n-1w, rig up, spdd. Oil Well Dr. Co.'s Van Daele 1, ne 36-30w-38, fish tools 4215 ft.

ROSEBUD—Prairie O. & G. Co. 1-X, 26-10-39e, dr 1535 ft, hfw.

SHERIDAN—Sheyenne O. & G. Co. 1, nw 15-36n-53e, to res 1400 ft.

TETON—Midwest's Scott 36, ne 2-26n-6w, abd. 2503 ft.

VALLEY—Perkins-Jones' Opheim 1, 31-37n-38e, dr 1080 ft.

YELLOWSTONE — Broadview O. & G. Corp. nw 18-3n-23e, mvg in.

WYOMING

BIG HORN—Westland Oil, Inc., 1, 24-54-95, gas at 510 ft. Wisconsin Holdings 5-55-97, sd 665 ft. Yellowstone Pet. Co. 1, 7-57-97, oil show 4080 ft.

CARBON—Producers O. & G. Co.'s Blivens 1, 35-13-92, sd 2220 ft. Midwest's U. P. 27, 11-20-81, dr 100 ft.

CONVERSE—Converse O. & G. Co. 27-33-73, recem at 1087 ft.

CROOK—Horth et al, se 9-56n-63w, location. Casper Pet. Synd., ne 29-51n-63w, location.

FREMONT—Texas Prod. Co.'s State 1, 36-44-96, try to circulate pipe, td 4485 ft. Producers & Refiners 1, 33-34-92, coring bel 4400 ft. Yellowstone Oil Co. 1, 15-38-94, dr 185 ft. Val B. Maghee et al's 1, 35-33-99, dr 1000 ft. Big Horn Oil Co., 15-38-94, rig.

HOT SPRINGS—Midwest Ref. Co.'s Weeks 8, 6-44-98, dr 4445 ft. Ohio Oil Co.'s Smith 1, 8-46-99, wait for rotary 4403 ft. Gebo Consolidated 1, se 23-44-95, 1410 ft with 150 ft, oil show in hole.

JOHNSON — United Oil Co. 7-47-92, sd 1700 ft.

LINCOLN—Midwest Ref. Co.'s Greys River 1, 25-37-117, abd 2752 ft. Mtn Oil Corp. 1, 36-25-116, ur 580 ft. Wyo. Prod. Co. 1, 14-24-113, dr bel 920 ft.

NATRONA—Cuyler Oil Co., sw 24-36n-86w, cas cem 1275 ft. Summit Oil Co., nw 21-33n-80w, dr 650 ft. Tarrant et al, ne nw 25-31-82, dr 300 ft. Golden West Oil Co., 36-36-81, dr 750 ft. Midwest 11, nw 32-34n-77w, cellar.

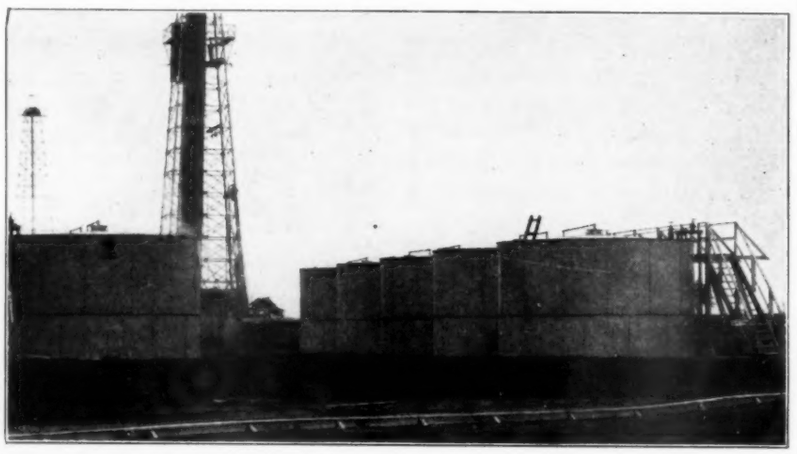
NIOBRARA—West Virginia Synd., ne 7-35-62, urr to 978 ft.

PARK—Resolute Oil Co.'s 17-27-101, dr bel 7510 ft. Cody Pet. Co.'s Danker 1, se 22-57-98, rigg up.

SWEETWATER—Vermillion Oil Co. 1, se 16-12-99, stand with 10-in cem 2650 ft.

UINTA—Park City O. & G. Co, nw 6-51-113, run cas, td 1200 ft.

WESTON—Gose Synd., 1, 28-47-65, stand. Updike et al's Fiddler Creek 1, 11-45-64, sd 1200 ft. LeFaivre Oil Synd. se 29-45-68, spd.



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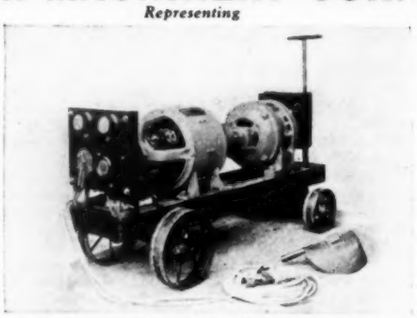

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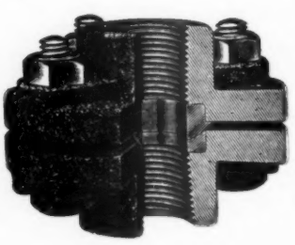

NEW MEXICO

DeBACA—Matador Oil Co.'s Wood 1, se 6-4n-20e, stand 3005 ft.

Eddy—Lockhart et al's Parker 2-X, 23-17-30e hfo, dr 3417 ft.

LEA—Hobbs High Co.'s State 1, 35-18s-38e, dr 4075 ft. Tidal's Grimes 2, 29-18-38, dr 3970 ft.

McKINLEY—J. W. Halsell's Santa Fe 1, 17-18-9w, sd 3255 ft. Wms. et al's A.T.S.F. 1, sw 19-18n-8w, stand 1850 ft.

QUAY—Silverstein et al's Wetzel, 29-12n-33e stand 85 ft.

RIO ARRIBA—Berringer et al's Hartman 1, ne 8-29n-7w, sd 825 ft. San Juan Pet. Co.'s Gov't 1, se 14-30n-7w, sd 515 ft.

SAN JUAN—Dorothy Oil Co.'s Terwilliger 2, 29-30-9w, stand 1750 ft. Kutz Canon O. & G. Co.'s Day 1, se 20-28n-10w, cas 1997 ft. Childers Dr. & Pr. Co.'s Westwater 2, nw 23-31-16w, sd 2525 ft. Rio Grande Dev. Co.'s Lanier 2, 9-29-11w, stand 1380 ft. Continental Oil Co.'s Rattlesnake 24, 1-29n-19w, dr 1500 ft. Murchiseon Oil Co.'s Angels Peak 4, se 11-28-11, dr 500 ft.

SAN MIGUEL — Pioneer O. & G. Co.'s Thunderbird 1, nw 14-15n-16e, wait 2355 ft. Starr Oil Co.'s Adams 1, ne 25-17n-16e, 8¼-in at 3271 ft. Cibola Pet. Co.'s Crown 1, se 9-13n-14e, dr 365 ft. Hershfield Dev. Co.'s Cabra Springs 1, ne 21-12n-22e, wtg for cas 1200 ft. 1200 ft.

SOCORRO—Lockhart & Co.'s Stackhouse 2, 14-3s-6e, pipe frozen 2770 ft.

TORRANCE—Williams et al's Staplin 1, ne 16-8n-10e, stand 1643 ft. J. B. Witt O. & G. Co.'s Kutchem 1, 12-17s-7e, dr 1244 ft.

VALENCIA—Acme Oil Co.'s N. M.-Ariz. Land Co.'s 1, 26-6-3, stand 4741 ft. Harlan et al's Harlan 2, 5-6n-2e, dr 1700 ft.

COLORADO

ADAMS — N. M. Slatt, se 27-25-64w, dr 2415 ft.

ARAPAHOE—McDebb Dr. Co.'s Fitzsimons 1, 7-45-55, swedg. 6⅝-in, td 5692 ft. Merritt et al's U. P. 1, nw 17-5s-64w, stand 1600 ft.

ARCHULETA — Outwest Inv. Co.'s Fitzhugh 1, se 34-33n-1e, resum 520 ft.

BACA—A. R. Jones Oil & Opt. Co.'s Boice Cattle 1, 22-34s-42w, stand 3800 ft.

BOULDER—Reliance Oil Co.'s Anderson 1, se 18-3n-70w, dr 1000 ft.

DELTA—Crawford O. & G. Co.'s McKissen 1, ne 28-15s-91w, stand 1100 ft.

DOUGLAS—Perry Park Oil Co.'s Cannon 1, nw 11-9s-59w, abd 2006 ft.

EL PASO—Utemore Synd, Cannon 1, nw 10-16s-66w, stand 1100 ft.

GARFIELD—Fulton Pet. Co.'s Permit 1, ne 8-8s-102w, ¶30 shutin 2857 ft.

JEFFERSON — Ruby Hill O. & G. Co.'s Braden 1, se 24-4s-59w, carry 6⅝-in at 3674 ft.

HUERFANO—Parker Club-Kinney Coastal's Fee 1, se 4-2s-59w, st 4116 ft.

LARIMER—Smith et al's State 2, ne 36-12-70w, hole lost. Donohoe et al, Maxwell 1, 25-8n-70w, sd 510 ft.

LaPLATA—McGarr Pet. Co.'s Mesa 1, ne 27-33n-12w, dr 3255 ft. Klem Pet. Corp's Olbert 1, se 9-35n-12w, 4¾-in at 2670 ft. Murchison Oil Co.'s Doescher 1, nw 9-33n-13w, stand 700 ft.

LINCOLN—Kelly Oil Co.'s State 1, 26-14n-57w, stand 3415 ft.

MESA—Argo Oil Co.'s Hoel 1, ne 23-8s-104w, sd for winter, td 3000 ft.

MOFFATT—Vermillion O. & G. Synd. 1, se 23-9n-100w, stand 750 ft. Midwest's Hannawalt 24, 4-6n-92w, redr at 2991 ft. Mtn Fuel Supply's State 2, tract 37-12-100, rig up. S. H. Keoughan et al's State 1, se 15-4n-101w, dr 2620 ft.

MORGAN—Ind. Terr. Illum. Oil Co.'s State 1, ne 16-1n-7w, dr 3162 ft.

PUEBLO—Kuykendall Oil Corp.'s Beecher 1, 7-22-66, dr at 562 ft.

PARK—So. Park Oil Co.'s Milligan 1, se 13-9s-76w, wtg pipe 1580 ft. So. Park O. & G. Co.'s Esche 1, ne 5-9s-76w, dr 515 ft.

ROUTT—Gorham et al, Omholt 1, 29-4n-87w, dr 95 ft.

RIO BLANCO—Texas Prod. Co.'s Potter 1, se 30-2n-69w, gas at 5987 ft, blow to co.

WELD—Platte Valley Pet. Corp.'s Patterson 1, se 24-6n-61w, show 6595 ft. Eastman Oil Co.'s Steel 1, ne 14-2n-67w, sd 165 ft.

WASHINGTON—Middlemist Oil Co.'s Middlemist 1, se 14-4s-56w, dr 1505 ft.

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LETTERS

I beg to thank you for your letter of the 30, August, and also for sending me my photograph, which I gave to Mr. R. E. Leigh and which arrived in good condition. I saw the very excellent article in the first August issue of 'THE OIL WEEKLY' but, unfortunately there was one error, as Capt. A. H. Farley, although a member of the institution, is not a member of council. If you get a chance to correct this I would be very grateful. With best wishes.

ROWLAND E. STOKES-REES,
Commander R. N., Secretary
The Institution of Petroleum Technologists, London.

* * *

I want to thank you for your letter of September 4, 1930, to Mr. Seubert with which you sent a reprint of the article in THE OIL WEEKLY on curtailment. This article has been read with much interest by some of our directors. The great trouble spot just now seems to be in the marketing end of the business.

Very truly yours,
CONGER REYNOLDS,
Director Public Relations.
Standard Oil Company (Indiana), Chicago.

* * *

In the last editions of THE OIL WEEKLY I read a few articles about the Roumanian oil industry and the way some of the companies understand to handle the business. I thought it will possibly interest you to know something about contractors in this country and to give you some information as to how far they have progressed.

Personally, I am supervising drilling for Mr. Ralph E. Fair in the Moreni field. Mr. Fair is an American contractor for many years in this country and also agent for the Oil Well Supply Company.

The enclosed pictures* are showing Well No. 1 Dacia-Romana, state perimeter at Piscuri, which has been drilled by R. E. Fair. We commenced drilling on the 14th of August and finished on the 4th of September, the well had to be ready on the 12th of September for potential test.

According to drilling reports we have made 10 days, actual drilling time, or 21 days in all—including two strings cemented; 16-inch at 600 feet, 10-inch at 2700 feet, and eight-inch liner set at 2855 feet, which is the total depth of the well. The formations drilled through, levantine-dacic, consists of conglomerate hard sands and sandy shale.

In drilling this well we used an O. W. 11x11 twin engine and a 253 O. W. model which had already drilled over 25,000 feet. A battery of three O. W.

*See page 41.

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LETTERS

90 h. p. boilers, which consumed over 400 cars of water, furnishing the power.

It is no doubt a record for Roumanian drilling and much under our own previous records. If you ever publish the above, please let us know if we are anything near the records obtained in the United States.

Kindly accept my best thanks.

Yours very truly,
ALFRED A. ALTMAN.

Moreni, Roumania.

* * *

Some of the fastest rotary drilling that we know of has been in recent development of inside locations at Darst Creek, Texas. During the past several weeks Gulf Production Company drilled over a dozen wells there, and the records on one of them showed it to have been rigged up, drilled and completed, with 10-inch and 6⅝-inch strings of casing cemented, in a total of 14 days, the depth being 2600 feet. That was not a particularly exceptional well, most of the others drilled by that company in the same campaign having been completed in about the same time.

Some good records have been made at Barbers Hill, which has been one of the most active of the Gulf Coast salt dome fields during the past several years.

However, the producing depths are usually below 5000 feet, and that factor must be considered in comparing the records there with those in shallower fields.

Supreme Oil Company's Ilfrey 2 at Barbers Hill started rigging up October 24, 1929, and was completed 21 days later, on November 13, 1929, as a producing oil well at total depth of 5103 feet, having been shut down for three days in the meantime waiting on gas for fuel. The actual time spent, therefore, in rigging up, drilling, setting and cementing casing, and completing the well was 18 days. Two strings of casing were cemented: 10-inch and 6⅝-inch. The time required for rigging up at Barbers Hill is usually about six or seven days.

The Texas Company's Wilburn 2 at Barbers Hill began rigging up September 22, 1929, and was completed as an oil producer at 5002 feet on October 21, 1929, with strings of 10-inch and 6⅝-inch casing cemented.

F. L. Thompson's Wilburn 1 at Barbers Hill started drilling September 17, 1929, cemented 10-inch and 6⅝-inch casing, and was completed October 9, 1929, as an oil well at 5037 feet.

Jumping to South America, one finds an impressive rotary drilling record in Lago Petroleum Company's No. 31 in the Maracaibo field, Venezuela. It was drilled to 3865 feet in total drilling time of 5-2/3 days. Here are some of the

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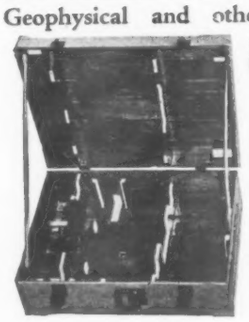
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LETTERS

records on the well: (1) Most feet drilled per 24 hours, 1326; (2) Most footage per day, 1055 feet; (3) Most feet per tour, 750 feet. Rigging up time was six days. Thirteen drilling bits were used, and the most footage per bit was 1356 feet. The same company drilled three other wells in about the same time required on this one.

* * *

I have noted in your September 5th issue the editorial appeal for a courageous vision. You are right in contending that there must be no loss of confidence or of morale in meeting the problems before the oil industry.

The Federal Oil Conservation Board has in the past commented on the helpful attitude of most of the oil journals, and this sympathetic support was never stronger or more general than at present. Conditions have materially improved, and this is no time to lose sight of the intangible factors of morale and courage, faith in rational conduct of business, and desire for cooperative endeavor. Common sense should seem sufficient guide to a better day in the oil business.

Sincerely yours,
RAY LYMAN WILBUR,
Secretary.

The Secretary of the Interior,
Washington.

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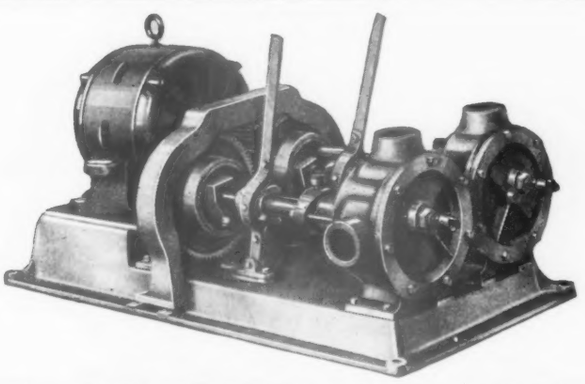
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This outfit is connected to the power by machine cut gears and friction clutches. This makes it possible to operate pumps simultaneously or independently of each other as the needs may be. It is furnished in 50 and 90 gallon sizes.
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HOUSTON, TEXAS

"For every joint on every line"

IF A BONUS WERE PAID—

for leak-tightness, flexibility, freedom from line distortion—for low installation and minimum maintenance costs—

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Available in every size from 3/4 inch up—for steel, wrought iron, cast iron and spiral weld pipe—any pressure. See Sweet's page 451. Mail the coupon below.

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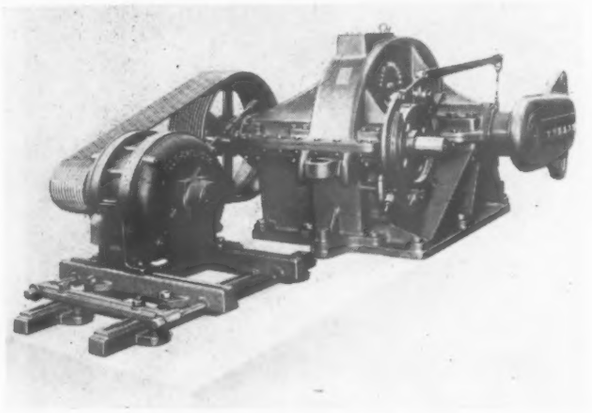
New Equipment for the Field

Machinery - Tools - Catalogs - Books



Allis-Chalmers Pumping Unit

Deep Well Pumping Unit

ALLIS-CHALMERS MANUFACTURING COMPANY

Allis-Chalmers Manufacturing Company, Milwaukee, announces its improved No. 11 pumping unit for deep wells. Extra strength and durability with high mechanical efficiency and flexibility of arrangement are the outstanding features of this unit. It is furnished with Texrope drive for electric motor speeds up to 1200 R.P.M., or for high or low speed engines. The ratio of the herringbone gears used in this unit is 8.34 to 1. Seven inches main shaft with crank side bearing 18 inches long is said to eliminate the possibility of breakage. The counterbalance which is detached for pulling operations and is also used with beam, pitman, or grasshopper counterbalance.

Other features of this unit are: non-dragging brake of the post type which is mounted on the pinion shaft, operation on independent motor rails, and ease with which pumping speed can be changed by adjusting the small sheave of the Texrope drive.

Further details and features of this unit may be obtained from any Allis-Chalmers oil field representative.

Backfilling Machine

ALLSTEEL PRODUCTS MANUFACTURING CO.

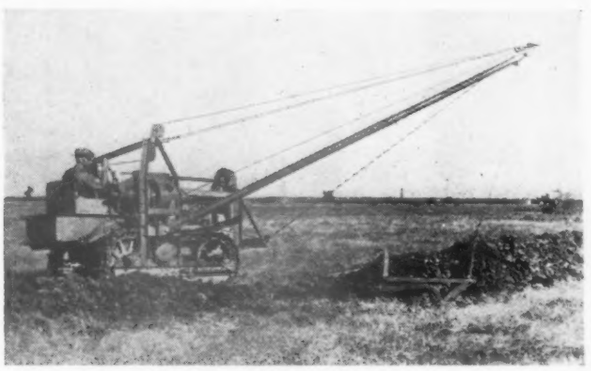
Allsteel Products Manufacturing Company, Wichita, Kansas, announces a new backfilling machine, adapted especially for covering pipe lines. The machine may be supplied for either one or two man control. In either instance the controls, including all positions, are manipulated from the operator's seat.

Construction includes all steel parts, a Diamond roller chain, American heavy-duty roller bearings, drum bearings operating in an oil bath and all other points requiring lubrication being fitted with Alemite oilers.

Boom is of 3½-inch standard steel pipe of telescoping type, affording adjustments from 14 to 22 feet in length, and may be operated 120 degrees to either side, or up and down. It is mechanically controlled by boom pole control drums from operator's seat, with the boom on either right or left side of machine. The in-haul drum has a speed of 175 feet per minute and out-haul drum 350 feet per minute, controlled from operator's seat through contracting band clutch.

The boom pole may be operated in any position within a sector of 120 degrees of arc, and can be held parallel to machine or in complete vertical position in transportation.

This unit is adapted to the use of general contractors, as it may be used as a portable hoist, for light ditching, and may be rigged to a tower to operate as a pile driver to handle a hammer weighing 1000 or 1200 pounds.



Allsteel Back Filler

Pipe Wrapping Machine

RESISTCOR ENGINEERING CORPORATION

Resistcor Engineering Corporation, Tulsa, announces a new pipe wrapping machine, which applies felt to pipe lines at the rate of 30 feet of line a minute.

This machine, which was designed and perfected by Herman Kramer and K. H. Burton, is made in two models. Model A, for wrapping two-inch to 10-inch lines, inclusive, is hand operated. Model B, for wrapping lines of 12-inch size or more, is operated by a one-cylinder, two-cycle, air-cooled engine consuming an average of three quarts of gasoline in 10 hours. The small model passes over Dresser couplings without being removed from the line the same as the larger model.

A leading feature of this machine is ease of handling, requiring the manipulation of only four bolts for removing or placing on the line.

A wiping mechanism, following the felt, removes wrinkles

Resistcor Pipe Wrapping Machine

NEW EQUIPMENT FOR THE FIELD

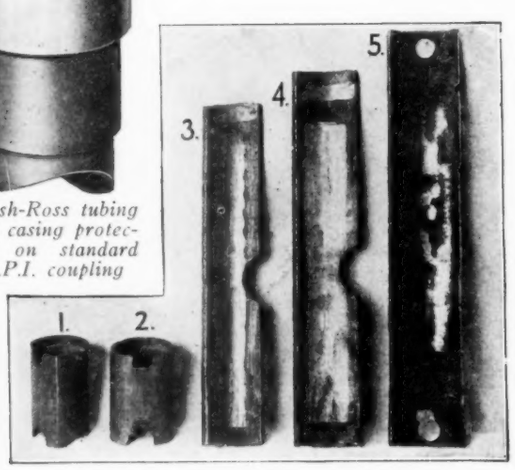
to give a smooth wrap. Rubber surfaced wheels on the line truck are to protect enamel-coated lines from damage.

Full particulars on this new machine may be had by applying to the company's Tulsa office.

Tubing and Casing Protector

BAASH-ROSS TOOL COMPANY

Baash-Ross tubing and casing protector on standard A.P.I. coupling



Unretouched photograph showing (1) and (2) Standard coupling run less than 30 days in a California deep well; (3) and (4) wear on casing from ordinary couplings; (5) casing in which Baash-Ross tubing protector ran for 300 days. Bright spots are bronze worn from protector—no wear on casing whatever.

Baash-Ross Tool Company, Los Angeles, announces a casing and tubing protector in which a smooth bronze sleeve forms the contact between the coupling or tubing and casing.

In one type the bronze protector is applied to the A. P. I. standard coupling with a press fit, without altering the coupling in any way. In the other type, for application to wearing points on the tubing itself, a split steel grip ring which slips over the tubing is provided with a male, and the bronze protector with a female thread. Tightening the two together with a spanner wrench holds the protector rigidly in place.

The protector is made so that there is nothing to come off and drop in the hole. The protectors are furnished complete or can be applied to couplings furnished by the purchaser. Complete information is given in bulletin 79, which will be sent upon request to Baash-Ross Tool Company, Box 1297 Arcade Station, Los Angeles.

Quigley Company, 56 West 45 Street, New York City, has issued a new booklet describing the uses of Annite, an all purpose detergent or colloidal cleaning compound which cleans without chemical action by emulsifying oils and grease and liberating the dirt. This 16-page booklet may be had by writing the company at the above address.

Bit-Reamer Combination

GLOBE OIL TOOLS COMPANY

Globe Oil Tools Company, Los Nietos, California, furnishes the accompanying illustration of its "B-2" drilling bit and "M-5" drilling reamer combination in use in the Oklahoma City field.

In using this reamer for drilling, particularly in larger size holes, the manufacturers explain that it is common practice to use a much smaller pilot bit than the diameter of the reamer. For instance, the picture shows a 17-inch "B-2" drilling bit used ahead of a 22-inch "M-5" reamer, thereby giving better penetration for faster drilling. Having both the bit and reamer on bottom at the same time is to hold them steady in the hole. Also this method is declared to be conducive to straight hole drilling, due to the fact that if the pilot bit tends to go off center, the reamer above holds it in a straight line.

Roy Wilson, driller, is shown in the picture standing beside the combination "B-2" bit and "M-5" reamer used by Moran Drilling Company to make surface hole at Oklahoma City field. Complete information and performance records regarding these tools may be obtained by writing to Globe Oil Tools Company, Los Nietos, California.

The Vapor Recovery Systems Company, 2820 Alameda Street, Compton, California, has issued three bulletins, Nos. 1, 2 and 3, covering respectively, "Varec" conservation vent or safety vent valves, "Varec" gauge and thief hole covers, and "Varec" super tank gauges. These bulletins may be procured by writing the company at the above address.

NEW EQUIPMENT FOR THE FIELD

Remote Manual Control

BROWN INSTRUMENT COMPANY

Brown Instrument Company, Philadelphia, has published Bulletin No. 7520, describing and discussing the de Florez system of remote manual control, a system handled exclusively by this company. Operating through an application of Selsyn motors, the de Florez system offers extreme flexibility and sensitivity. The operator may retain the "personal touch" and actual "feel" of the mechanism being operated regardless of the distance separating the transmitting and receiving mechanism.

With this system, the central operator may perform an

operation at a distance without leaving his post. He may open or close a valve, operate a rheostat, move a lever or turn a screw which is operated by the de Florez system. He is also allowed to know at all times the exact setting of the distant controlled members.

The accompanying photograph shows the transmitting and receiving mechanism of the de Florez valve control.

Bulletin No. 7520 will be forwarded to interested persons upon request to Brown Instrument Company, Wayne and Roberts Avenues, Philadelphia.

Diesel Engine Bulletin

Fulton Iron Works Company, St. Louis, has issued a new bulletin on the Fulton Type RR Diesel engine which is of four-cycle, airless injection, single acting type for stationary service. This type is 120 to 600 H.P. and involves every feature of sturdy construction in all parts, including the cast iron base plate of the framing, the solid forged crankshaft of unusually large proportions, water-cooled cylinder liners and special analysis cast iron cylinder head. The crankshaft rests in removable shells of solid babbitt. The camshaft is placed at the level of the cylinder heads and is driven by helical gears from a vertical shaft. The latter shaft is driven from the crankshaft by helical gears, insuring quiet operation. Cylinders are lubricated by separate metering force feed pumps with reservoir compartment. Two feeds are used for each cylinder and this lubrication system is completely independent of the bearing lubrication which is effected by a positive circulating pressure system through a drilled crank shaft and drilled connecting rods. Oil drains from the crank case into one of two sump tanks.

Starting of this engine is by low pressure air at not more than 250 pounds pressure. Each cylinder is provided with a starting valve actuated by compressed air, controlled by pilot valves which are opened and closed by timed cams on the camshaft.

Further information on construction and operation of this engine may be obtained from the company upon request.

Cement Catalog

International Cement Corporation, New York City, announces a new booklet on "Incor", a high-early-strength Portland cement which has a compressive strength of 2400 pounds after setting for 24 hours, compared with a compressive strength of 900 pounds after the same period of time with average Portland cement. This cement is used in the oil industry for oil station pits and for the cementing of oil wells.

Advantages of this cement are: Concrete ready to use within 24 hours after pouring; conforms to all requirements of the materials testing society; produces workable, plastic concrete which places easily; produces dense, watertight concrete; and contains no admixtures..

Information on "Incor" may be obtained by writing the home office.

Hughes Tool Catalog

Hughes Tool Company has issued revised literature in the form of loose leaf sections to be added to loose leaf catalogs carrying Hughes Tool products. A 28-page section is devoted to covering the Hughes Simplex rock bit, and presents pictures of all parts of the bit separately and assembled.

Views of the plant, showing the actual manufacture and assembly of the Hughes rock bit are given as illustration. A 16-page section on Hughes tool joints, including a treatise on the heat treating methods used, is an addition to literature covering this Hughes product.

A 30-page catalog covers the Hughes drilling valves and fittings of heat treated cast chrome nickel steel. The Hughes Type "C" core bit is cataloged in a 16-page loose leaf section, which covers this equipment. A four-page folder is devoted to covering the Hughes milling tools. Price tables on all of these products are carried in the new catalog additions, which are available upon request to Hughes Tool Company, Houston.

General Electric Company, Schenectady, New York, has issued a 20-page booklet devoted to outlining copper brazing and copper-brazing furnaces. The subject is covered in an interesting style and is profusely illustrated to bring out a clear picture of this work.

"Centrifugal Compressors" is the title of another booklet recently issued by General Electric Company, a publication approximately 75 per cent pictorial. The detailed features of General Electric blowers, illustrated throughout, is presented in this bulletin.

This literature will be sent upon request to General Electric Company's headquarters, given above.

Manufacturers and Supply Dealers Notes

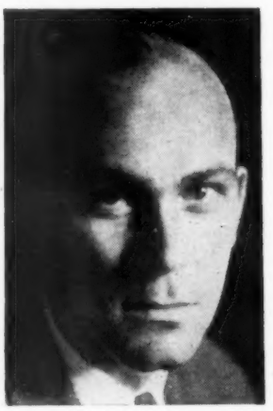
In line with the policy of departmentalizing its sales organization and placing experienced group specialists at the disposal of the industries it serves, Pittsburgh Equitable Meter Company has added Frank J. Reynolds to its sales force. Mr. Reynolds will be associated with the Emco orifice meter and Emco gauge department. He has had 10 years of successful selling experience with Bristol Company, Waterbury, Connecticut, during which time he specialized upon the introduction of similar new equipment in a variety of industries from coast to coast. This background especially qualifies him for his new duties. He will be located at the home plant in Pittsburgh.

FRANK J. REYNOLDS

Sheldon Machinery Corporation's Gulf Coast headquarters has been moved from 717 Second National Bank Building, Houston, to 953-A Merchants & Manufacturers Building, where both office and warehouse stocks will be located. A. P. Berry and G. V. Hogan are Sheldon Machinery Corporation's representatives in this territory.

Petroleum Equipment Company and Oil Field Engineering Corporation are placing stocks in Los Angeles and will maintain offices and warehouse stocks at 1506 Santa Fe Avenue. G. D. Hall, formerly with Guiberson Corporation of Dallas, will be the California Representative. Mr. Hall is thoroughly conversant with oil country requirements and will be capable of handling the distribution from Los Angeles stocks which will be of decided interest to the California trade.

Brockway-Indiana Truck Corporation, Cortland, New York (Eastern Division), and Marion, Indiana (Western Division), has issued a six-page folder announcing Models 170, 220, 195 and 140, four double reduction drive models completing a series of six-cylinder trucks.- These are high-speed, heavy trucks designed to answer the need for high speed without sacrifice of load. This folder will be sent upon request to the company at either of the above addresses.



RAY P. TARBELL

Ray P. Tarbell has recently become a member of the firm of Robert E. Kinkead, Inc., consulting engineers, Cleveland, Ohio. He was formerly Cleveland district sales manager of Lincoln Electric Company. Robert E. Kinkead, Inc., serve as welding engineering consultants for large steel companies, steel fabricators and manufacturers of mechanical equipment. They also supervise the establishment of welding departments within industrial firms and direct the methods of welding procedure and control and the redesigning of products for arc welded steel construction. As vice president and secretary, Tarbell will aid Robert E. Kinkead in his executive duties as president of the firm. Mr. Tarbell entered the employ of Lincoln Electric Company in 1918. He was afterward promoted to the sales force and later made district sales manager.

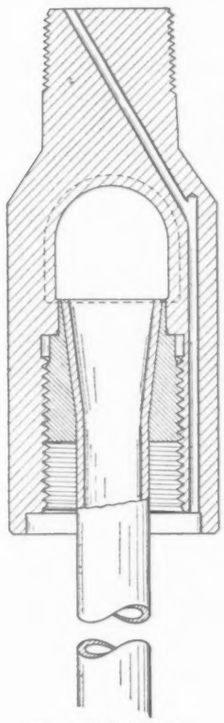
The photograph below shows A. O. Smith Corporation's pipe storage and loading yards, with pipe destined for some of the large pipe lines now in construction. There are 225 miles of pipe in the storage and on cars, ready for shipment to Missouri Valley Gas Company, Southern California Gas Company, Electric Bond & Share Company (Texas Construction Company), The Southern Counties Gas Company, Phillips Petroleum Company, Southern Natural Gas Company, Continental Construction Company (Chicago Line) and Columbia Gas & Electric Company. A. O. Smith Corporation pipe storage, when filled to capacity, holds 77,000,000 pounds of steel pipe—450 miles in the 10-inch size. The storage is in steel crates, each of which contains one carload, regardless of size. The entire crate is lifted by a 50-ton crane, making loading of the cars a simple matter. Shipments are made at the rate of 800 to 900 cars per week.

On September 24 a record run of 33½ miles of pipe was made.

A. O. Smith Corporation has a busy day

Hughes Tool Company

LUBRICATOR CAGE FOR ROCK BIT



Forged lubricator cage

Due to certain errors in the text of description of items featured by Hughes Tool Company at the exposition at Tulsa, the following is reproduced from page 118-119 of our issue of October 10, with correction and apology:

Hughes Tool Company, Houston, is exhibiting the lubricator cage for rock bit which is manufactured from chrome nickel steel. This device has been developed to overcome cutting action of sand laden flushing fluid. This was accomplished by enlarging small drilled ports of previous design into two large ports. The new ports are such great capacity and of such shape that eddy currents within the cage and wash pipe throat are almost eliminated. The steel forging adds materially to the strength of the steel and therefore to the finished product. The wide open ports afford a good eyelet through which to pass the cat line hook.

CORE BARREL VENT

This part of the core bit represents an improvement over the older design valve, consisting of two parts, vent plunger and vent cylinder. The vent plunger screws into the top of the core barrel. Vent cylinder screws into top of working barrel. A rubber packing ring effectively seals against mud leakage. A removable seat and ball with cotter pin retainer are provided to prevent ingress of mud to core from wall of hole when lifting core bit from bottom. A strainer, screwed into bottom of vent plunger prevents fouling of ball check and discharge passage ways. This core barrel vent allows for complete pressure relief on core because fluid above core is discharged outside of drill stem instead of inside against pump pressure and allowing pump to be run at best speed for removing cuttings, preventing "balling up" and burning of core.

Core Barrel Vent

CORE BIT PLUG

The core bit plug consists only of a mandrel screwed into a steel thimble. When going into the hole, plug rests on shoulder in cutter head and prevents fouling of core from wall scrapings, bridges and bottom settlings. When bit reaches bottom, plug slides up core barrel ahead of

Cast Steel Drilling Valve 6000 lbs. Test Design

Core Bit plug complete

Combination Drilling Valve and Cross, 3000 lbs. test pressure

Combination Drilling Valve and Cross, 6000 lbs. test pressure

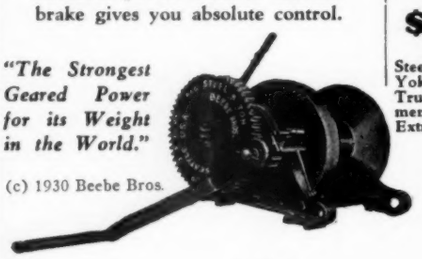
B. B. Bros.
ALL STEEL HAND HOIST
TRADE MARK
SEATTLE, U.S.A.

Quick, Convenient Power in Small, Compact Weight

An indispensable piece of field equipment, say producers who use the B. B. Bros. Hand Hoist every day. It saves them time and money on emergency jobs of hoisting and pulling because it is portable and quickly set up. Weighs only 110 lbs. yet has tremendous power. Positive internal brake gives you absolute control.

"The Strongest Geared Power for its Weight in the World."

(c) 1930 Beebe Bros.



Weight 110 lbs
Capacity FIVE TON STRAIGHT LINE
Size 16x17x13" High
Two Speeds 4 to 1 24 to 1
POSITIVE INTERNAL BRAKE
Construction Eight Pieces Electrical Steel Without Keys or Setscrews
PRICE
$80
Steel Tail Hold Yoke $4 Extra. Truck Attachment Plate, $5 Extra.
5 TONS Capacity

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THE NATIONAL SUPPLY COMPANIES

HOTEL HARRISON
CHICAGO'S NEWEST DOWNTOWN HOTEL
RUNNING ICE WATER IN EVERY ROOM
$2.50 AND $3.00 WITH BATH NO HIGHER
RADIO IN EVERY ROOM
NO PARKING WORRIES
DIRECT ENTRANCE FROM HOTEL TO GARAGE

HARRISON STREET JUST OFF MICHIGAN BOULEVARD
CHICAGO

core, eliminating necessity of flushing barrel before coring operations are begun.

DRILLING-THRU CONTROL MASTER

This valve has side outlets and was designed to meet conditions where high gravity oil and gas at high pressures are encountered. Its use decreases the overall height of the Christmas tree and eliminates one nipple and two casing threads. Side outlets can be furnished with either male or female thread. Seats have ample clearance and all parts, except body, are interchangeable with Hughes drilling valves of same size and pressure.

TOOL JOINTS

Hughes tool joints are again included in the exhibit showing Hughes "Acme" thread, Hughes "V" thread, and Hughes A. P. I. thread. In addition to the smaller sizes this company is now furnishing the trade tool joints of chrome nickel steel in all sizes.

Leak Indicator

CORRECTION

Through error in the October 10 issue of THE OIL WEEKLY, Granger Indicator Company's tubing leak indicator was shown upside down in an illustration. Inasmuch as it is impossible to run this tool in the well with the slip end down, the accompanying illustration is used to show the correct position for running the indicator.

This tool is used to locate tubing leaks. After assurance is had that the standing valve is tight, sufficient fluid is run in to fill the tubing. The indicator is then started down, slip end up, and fluid is run on top of the tool until the tubing stands full. The indicator stops at the leak because the fluid below the leak has no release and is therefore non-compressible.

Crausby Supply Company, Houston, has issued a bulletin on its new safe reverse engine which is designed to fit any single or twin-cylinder steam oil field drilling engine. This device utilizes the power of the steam to perform the task of shifting the reverse lever. The safe reverse engine consists of a complete steam operated reversing gear which can be attached to any steam drilling engine employing the Stevenson links or similar reversing appliances. This gear is controlled by a forward and backward movement of the rod which operates the throttle valve of the drilling engine. The retarder cylinder which is filled with light oil or other fluid cushions the reverse lever and acts as a retarder, preventing violent shocks to the working parts of the engine. This bulletin may be secured upon request to the Houston office.

Fusion Welding Corporation, 10,257 Torrence Avenue, Chicago, has issued an eight-page engineering bulletin No. 6 describing unbeveled plate welding and giving complete detailed instructions. This bulletin may be had by mailing requests to the address above.

Sam Houston

From the skyline studios of Radio Station KPRC at Houston, each Monday evening at 10, the Houston National presents the Houston National Players in historical sketches based on the life of Sam Houston; and the Houston National Concert Orchestra.

Going Down!

"Going down!" is all right under some circumstances. The parachute jumper has a definite purpose when he leaps from a whirring plane; but there are other ways of going down which are not so purposeful. Living beyond one's income, for instance. Going down financially means that you will have a hard time beating back.

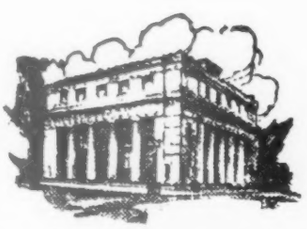
The first thing, then, is to properly safeguard yourself so you won't go down; the second is to so fortify yourself that if, through adversity and unforseen circumstances, you find yourself going financially down hill, you will have a comfortable reserve to fall back on.

The most comfortable feeling in the world is to know you have money in the bank when it is sorely needed; or to realize that you are piling up a reserve that may eventually be invested in profitable securities or a successful business.

The Houston National Bank has helped thousands build a reserve. Why not you?

HOUSTON NATIONAL BANK

Main at Franklin



USE
APPLEMAN
GUMBO BITS
for
Maximum Footage
at Minimum Cost

WATER COURSES

Note that water courses lead direct to cutting edge. This design has accomplished a maximum cooling effect. The cuttings are rapidly broken up and washed away in solution thus obviating choking-up.

SELF-SHARPENING EDGES

A principle in the design is that the blades are formed concavely favoring cutting edges for both bottom and side of hole. Attained by hard facing, permitting wear on back to retain cutting edge.

SIDE WALL CUTTING

The cutting edge is so constructed that it cuts side wall as it drills. This feature accomplishes a full round hole and a well prepared side wall. Holds guage longer. This side wall cutting function makes reaming rarely necessary.

Write for
Complete Information

B. K. APPLEMAN
BEAUMONT, TEXAS

Squeaks from the Bull Wheel

How did you like the barcarolle at the musicale last night?

I didn't stay for the refreshments.

I should like to see something cheap in a brown suit.

Here, try this one on—the mirror is over there.

"After all no one can take the place of mother."

"No, I don't know what the bridge club would do without her."

First Picnicker — Heavens, I've swallowed an ant!

Second Picnicker—Give him an antidote, quick!

Third Picnicker — Here, swallow this spider.

"Look, George," cried Mrs. Newbride, one evening, "I have a box of your favorite cigarettes here so we have saved 30 cents this week."

"How do you make that out, darling?" asked the surprised mate. "Did you win them at bridge or something?"

"No," confessed the blushing bride. "I just took one out of your box every little while and put it aside in one of your empty tins."

I just had a cake of soap named after me.

Don't kid me. It's been called Ivory ever since I can remember.

"How did you manage to keep people from walking on your new lawn until it attained such growth?"

"Merely by studying the traits of human nature. I put up a sign which read: 'Keep off the cement walk; it hasn't hardened.'"

If you believe that Zaro Agha who came to this country is 156 years old, then you may believe the story about the stranger in the Scottish village who stood aghast at seeing a man about 90 thrashing another about 70. And the stranger protested.

"And what for no?" demanded the 90-year-old. "Can I no punish my ain son when he chucks stones at his grandfeyther?"

Here is a cigar which you can offer to anybody.

No, thanks. I want one which I can smoke myself.

The two men were fighting with chairs.

Didn't you try to establish peace?

No, Your Honor. There wasn't any third chair for me.

Little Brother—If I wasn't here your boy friend would kiss you.

Big Sister—You impertinent boy! Go away this instant.

Bless old John Skinshinny. He showed confidence in me when the clouds were dark and threatening.

In what way?

He lent me an umbrella.

Kopweh — Spendalot says he's always broke.

Harnruhr—Yes, and his alibi is that he never gets the breaks.

Bilgewater—Well, how are you and your wife getting along now?

Slumgullion—She seems to think she is the Senate and that I am President Hoover.

Ysabel—Weren't you frightened when the lifeguard took so long in reaching you?

Florabel—Was I? I almost gave up and started swimming!

Did you hear about the awful trouble that has befallen Mrs. Gabble-Gabble?

Don't tell me she has lost her voice.

No, her husband has lost his hearing.

Mama, why do they wax people?

They don't. Where did you get that idea?

I heard Papa tell another man that at midnight the party waxed Mary.

How did you get your mustache in this condition.

I tried to steal a kiss from a girl who was chewing gum.

Why is unadultrated love like a kangaroo with rheumatism?

Just a form of sickness, I suppose.

You're wrong. It knows no bounds.

The minister was warming to his subject. "All of yoh," he fulminated, "unless yoh repent, will be cast into outah darkness, and wail and gnash yoh teeth."

"Ah ain't got no teeth," interrupted an old man.

"Dey is goin' to be supplied," answered the minister, complacently.

Groucho — Didn't some brainless idiot propose to you before we were married?

The Mrs.—Yes.

Groucho—I wish to goodness you'd married him.

The Mrs.—I did.

The family was seated at the table with a guest who was a business acquaintance of dad's, all ready to enjoy the meal, when the five-year-old son blurted out, "Why, mother, this is roast beef!"

"Yes," answered the mother, "what of it?"

"Well, pop said this morning that he was going to bring that fish home for dinner tonight."

SKILLED SUPERVISION GUARANTEES THE QUALITY OF GULF PRODUCTS

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World-Wide Coring Renown

H. C. Smith (Globe-Made) Coring Outfits are making consistent records for fast, efficient coring, with a high percentage of perfect cores, in every quarter of the earth where wells are drilled.

They will penetrate any formation that a fishtail, drag or disc bit will penetrate. Serrated cutter blades, and special drop-forged alloy steel construction, give them exceptional efficiency in this respect, —as well as much greater wear-resisting qualities.

These tools commonly serve in the hardest kind of coring work, without replacement or repairs, for a total footage that renders them exceptionally economical.

Type "B"
H. C. Smith
Coring Outfit

Available in all sizes from 3⅜″ to 19″—2-piece core bit suitable for rebuilding or economical to throw away if badly worn —20′ or 30′ barrels available to run with 14″ to 19″ core bits. Single or double core catcher optional.

Type "C"
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Coring Outfit

Drop-forged two-piece bit permits either economical replacement or easy repair of cutterheads. All four blades cut to same gauge.

H. C. SMITH CORING TOOLS

Send for Bulletin 10-A, describing these and other famous Globe-Made Tools.

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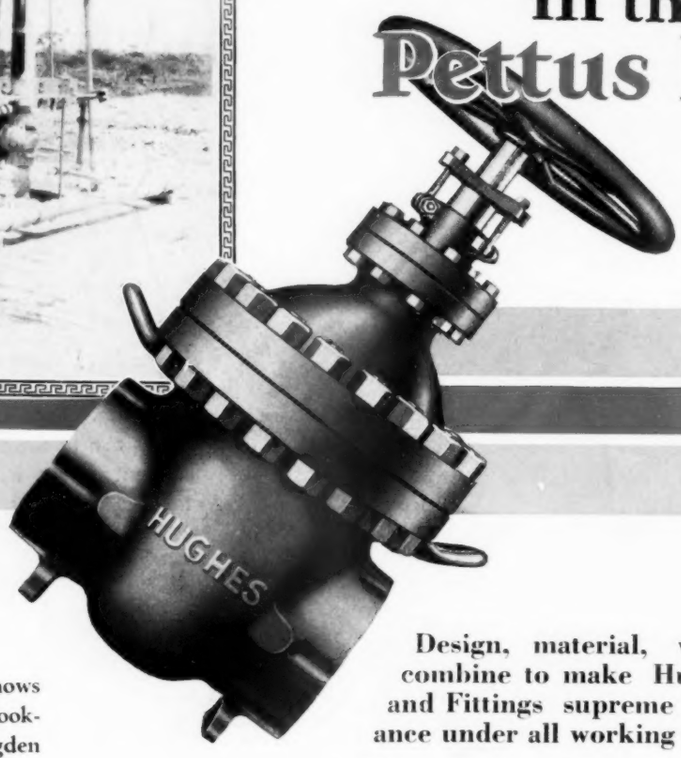
SUPERIOR PERFORMANCE *of* HUGHES VALVES in the Pettus Field



The above picture shows the Christmas Tree hook-up on the Buchanan-Ogden townsite well at Pettus, Texas.

A Hughes 6⅝" Drilling Valve—Hughes 2" and 3" Manifold Valves and tees —all 5,000 lb. test, are used—pressure 1100 lbs.

The man in the picture is Al Buchanan.

Design, material, workmanship combine to make Hughes Valves and Fittings supreme in performance under all working conditions.

The castings are fine-grained, tough and wear resisting. All parts are interchangeable.

All cast parts, including the handwheel, are heat-treated chrome-nickel steel.

When completed every valve and fitting is tested with kerosene at double the rated working pressure. Additional tests further guarantee positive closure under varying working conditions.

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